duveen

DUVEEN SOAP CORPORATION
36-14 35th STREET • LONG ISLAND CITY 6, N.Y.
telephone: STillwell 4-7870

Drug and Cosmetic Industry

Contents

December 1960 Vol. 87 No. 6

Cover by Ken Rossi

Feature Articles

753 **Science in Advertising**
by Earl W. Kintner

755 **Pressures on Pharmaceutical Prices**
by Peter Bart

756 **Color Additives for Cosmetics and Drugs**
H. D. Goulden

758 **Diuril Creates New Markets**
by Milton Moskowitz

760 **Men's Fragrances: Formulations from the Classic Cologne to Modern Blends**
by J. R. Elliott

762 **Creativity in Research**
by Robert M. Goldemberg

764 **Modern Oxidation Hair Dyes**
by Marvin K. Cook

766 **The Pharmaceutical Revolution Down on the Farm**
by David Dachs

Packaging and Selling Section

771 **Pressure Packaging**
by Victor DiGiacomo

773 **Packaging and Selling**
by Frazer V. Sinclair

779 **News in Packaging**

781 **News and Views**
by Ted Klein

Departments

745 **Keeping Posted**
by Joseph Kalish, Ph.D.

786 **Patent Thoughts and Trends**
by Thomas Cifelli, Jr.

789 **News**

803 **Management Forum**
by Francis Chilson, Sc.D.

832 **Trade Literature**

835 **Industry's Books**
by Harry G. Kelbly

851 **Coming Events**

Technical Abstracts

818 **Perfumer's Shelf**

821 **Advancing Therapy**

825 **Compounder's Corner**

829 **Skin Research**

Publisher and Editor FRAZER V. SINCLAIR
Executive Editor JOSEPH KALISH, Ph.D.
Managing Editor GRACE McGRAW SMITH
Art Director MAX FRANKEL
Contributing Editors
Engineering and Management FRANCIS CHILSON, Sc.D.
Technical JOSEPH KALISH, Ph.D.
Patents and Trademarks THOMAS CIFELLI, JR.
Packaging and News GRACE McGRAW SMITH
Books HARRY G. KELBLY
Cosmetics GRANT LEE

Drug & Cosmetic Industry is published monthly by Drug Markets, Inc., Frazer V. Sinclair, President and Treasurer; Paul Alexander, Executive Vice-president and Secretary. Editorial and General Office: 101 West 31st St., New York 1, N. Y., U.S.A. Publication Address: Sun Printing Corp., 28 Renne Ave., Pittsfield, Mass., U. S. A.

Advertising Manager, P. W. Alexander; Advertising Representatives, Walter M. Brauneiss, C. R. Keeley; Production Manager, Katherine Hyde; Circulation Manager, Harry G. Kelbly.

Midwestern Advertising Representative: Dwight Early and Sons, 100 No. LaSalle St., Chicago 2, Telephone, CEntral 6-2184. West Coast Advertising Representative: Dillenbeck-Galavan, Inc., 266 S. Alexandria Ave., Los Angeles 4, Telephone, DU 5-3991.

Subscription price $3.00 a year, in advance. Foreign Countries, $5.00. Single copies, 35c; Back issues 50c. Second-class postage paid at Pittsfield, Mass. Member of Audit Bureau of Circulation.

Copyright 1960
by Drug Markets, Inc., Vol. 87, No. 6.

By the publishers of Drug and Cosmetic Industry

Beauty Fashion. The magazine of personal selling. Yearly subscription in the U.S.A., $3.00.

Drug and Cosmetic Catalog. Directory and data for manufacturers. Published every two years. $4.00 in the U.S.A.

Trade Mark Record and Supplements. Complete trade-mark listing of perfumes and cosmetics. $15.00.

Books. Technical information for manufacturers of drugs and cosmetics.

"To put it briefly, they're crazy about our ads but they can't stand the product."

MELLON INSTITUTE
LIBRARY
DEC 29 1960
PITTSBURGH, PA.

Keeping Posted

A.D.A. Attacks A.M.A. Position

A leader in American dentistry urged his colleagues in the health professions to drop use of the word "socialization" as a catch phrase.

Dr. Harold Hillenbrand, secretary of the American Dental Association, branded as "unfortunate" the tendency to use the word to dismiss health proposals without giving them full and fair hearing.

Speaking at the 19th annual dental review of the Detroit District Dental Society at the Statler Hilton Hotel, Dr. Hillenbrand declared:

"To me, the greatest danger in the next few years is not invasion by the government, but rather loss of leadership by the health professions."

If the health professions provide strong and responsive leadership in meeting the demands of the people, the dental executive said that the traditional relationship between patient and health practitioner free of govrnment interference will be maintained and perhaps even strengthened.

But he warned that if the professions fail to make available and support acceptable methods and devices for expanding health care—such as prepayment plans—then the government will have no choice but to intercede.

The day when catch phrases such as "socialization" were acceptable in describing the supposed failings of health proposals has passed, said Dr. Hillenbrand. The public, he asserted, wants concrete proposals and explanations and will accept, and deserves, nothing less.

Matters of health are of transcendent importance to the people and rise above political or factional considerations, Dr. Hillenbrand pointed out.

He declared that when the government makes inadequate or undesirable health proposals, the health professions must counter with responsible measures which go to the center of the problem.

The Outrageous Cost of Facial "Beauty"

By tearing a piece of the industry out of its proper setting, A. D. Stabile tries, in a recent article in *The Reader's Digest* with the above title, to build a case against "high priced" beauty creams. She does not at the same time inveigh against high-priced luxury automobiles and favor low-priced basic models, nor tell us that we all ought to go back to the basic simplicities of outdoor plumbing or, for that matter, give up frozen and processed premium foods in favor of lower-cost raw vegetables.

The whole cosmetic industry, not only its treatment lines, deals with the enhancement and creation of beauty, fashion, and attractiveness. It does this incidentally by esthetic appeals, by appeals to the style sense, and by providing hope. Yet these appeals are based overwhelmingly on toilet preparations that deliver precisely what they are designed to do. A perfume makes you smell better and a deodorant prevents you from smelling bad; shampoos clean the hair, hair dyes color it, wave solutions curl it, and wave sets and hair dressings keep it neat; lipsticks color the lips and facial and eye makeup make you look better; cleansing creams do clean the skin and suntan preparations prevent sunburn.

Miss Stabile chooses to disregard these cosmetic items and concentrate her fire on face creams. In the first place, just how important are they? According to the 1958 Census of Manufactures, all face creams accounted for about $65 million in manufacturers' value out of a census total of $1,097 million, or less than 6 per cent. Furthermore, lubricating creams, including hormone creams, which are the ones that really disturb the lady, were valued at $19.8 million, or 1.8 per cent of the total. If, then, "many of these preparations are excellent, many of them are sensibly priced and honestly advertised," just how many toilet preparations are being over-exploited? At this percentage, we could easily be among the best behaved of industries.

Just how important is this "high price" pitch? It is

sans odeur

isopropyl myristate

isopropyl palmitate

butyl stearate

In an age where superlatives are too often used to describe mediocrity, it is difficult to convey the merits of a product of highest quality. Therefore, rather than trust to words, we would like you, our friends, to be the judge of the excellent odor and color characteristics of this new quality. Write to Kessler Chemical Co., Inc., State Road and Cottman Avenue, Philadelphia 35, Pa., for your samples of Isopropyl Myristate, Isopropyl Palmitate and Butyl Stearate, from our new production.

much more illusory than real. How many jars of exotic creams have actually been sold at $50 for a one-ounce jar or $115 for a one-pound jar? Not enough to make "a multimillion dollar hoax," but perhaps few enough to set the tone for a luxury line at a lower price that women willingly pay. And as regards the value of ingredients, the same quality of fine wool, if not the same amount, can go into two different suits of clothes which will sell for and be worth widely different amounts.

Royal jelly is especially close to Miss Stabile's heart. According to the author, in the early 1950's the press proclaimed it as a new hope for aging skin. If the press is to be believed blindly, then we have cured cancer every two years, if not more often. This "miracle ingredient," as with virtually all of the others mentioned, has been added to treatment preparations that were otherwise good ones, because of hope and some degree of evidence that it might be useful. The FDA sees to it that the product is harmless and the FTC polices advertising claims. Illegal products are driven off the market. Hope and snob appeal are by no means unique to cosmetic sales appeal; they are no more out of place in our segment of American economy than elsewhere. A woman may pay a bit more for a beautiful cosmetic package than for a standard product, just as she must have a fur coat that is no warmer than a cloth one. At worst, these added ingredients are a lift to the spirit, and accordingly, valuable.

Finally we have a return to the implication by the A.M.A. that hormones in cosmetics, especially if used in excess, are harmful. As a matter of fact, estrogens are permitted in cosmetic creams only in extremely limited quantities that may still have a useful effect, but are below a reasonably imposed danger level. The recent activity of the FDA with respect to colors is indicative of the zeal with which that agency tries to prevent the use of potentially harmful substances. Although lipstick colors had been in use for years without complaint of harmfulness, they were investigated under extremely drastic experimental conditions, and a new set of rules imposed for their safe use. It is not conceivable that hormone creams or other cosmetic products could be sold if their complete safety was in any way questionable.

Other chapters in Miss Stabile's book will have to be quite a bit better than this one if she intends to demonstrate the ability to evaluate facts rather than exploit a bias.

HEW Investigates FDA

One of the consequences of the Kefauver drug investigation was the appointment of two committees by the Secretary of the Department of Health, Education, and Welfare, to check the performance of the Food and Drug Administration. A National Academy of Sciences group sought to discover if decisions of FDA officials reflected good scientific judgment, while the second committee investigated relationships between the FDA and the drug industry. The first group reported in October that the FDA is doing the job it is set up to do, within the limits of its legal powers, budget, and personnel, but these must all be enlarged if the department is to do a really satisfactory job. Recommendations for enlarging powers and revising procedures are pretty much in line with those previously made by the FDA itself.

The second committee, according to an account in *Science* (November 25, 1960, page 1536), is investigating personnel and has yet to file its report, but has permitted leaks, to indicate the trend of ideas. "Although there are no more such blatant conflict of interest situations in FDA as Welch represented, the relations between the FDA and the drug industry are indeed much too cordial. The committee would like to see a return to the arm's length stance of FDA that prevailed from the time of the New Deal through until about the end of World War II." On the other hand, the official view of the FDA seems to be that a good deal is accomplished by cooperation with industry, which would be difficult to do if the agency were a policeman. According to the *Science* story, cordial relations are recognized as not only making life pleasanter for the antagonists, but very substantially expedite the business at hand. On the other hand, there is danger, not of cordiality between the regulators and the regulated, which is useful, but of the regulators coming to forget that, despite the room for a great deal of useful cooperation, the regulators and the regulated should represent opposing interests and points of view.

Artificial Tanning Patent Nears Trial

Plough, Inc., is pressing for early trial of the patent suit brought by Drug Research Corporation. The latter organization, as soon as United States Patent No. 2,949,403 was issued to John T. Andreadis and Saul Miklean, initiated suits for patent infringement against a number of companies using dihydroxyacetone in artificial tanning preparations, as described in Drug and Cosmetic Industry, September 1960, page 320. According to Dr. W. Harry Feinstone, director of research for Plough, extensive literature search may reveal prior knowledge of the ability of DHA to stain the skin; it may be possible to show that patentees were not in fact the true inventors; records of J. H. Baker and A. Minton of Gar-Baker Laboratories can be produced to show that they had used DHA in preparations to color the skin before the filing of the Andreadis and Miklean patent. A patent application by Baker and Minton made before the issue of the Drug Research patent did not result in interference, apparently only because of a patent office error and this patent application is being prosecuted.

Plough believes it has considerable grounds for optimism as regards the outcome of the patent suit and,

Where our dry **vitamin A** shows its mettle

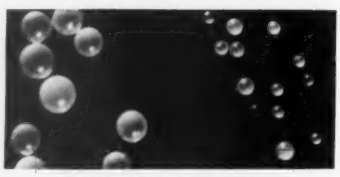
In the bottle, on the shelf, under adversity is where the difference shows up most.

Some vitamin tablet formulations are rough on vitamin A.

An occasional run may be made under moisture conditions higher than normal. The formula may contain hygroscopic ingredients. In either case, on-the-shelf vitamin A potency of the tablets may drop off more rapidly than usual.

This is true with a number of commercial dry vitamin A products. However, it is less true of our *Myvax® Dry Vitamin A Palmitate* than of any other dry vitamin A we have tested.

If you would like to see a report describing these tests, get in touch with ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.



Greatly magnified here, *Myvax Dry Vitamin A Palmitate* is supplied in two standard size ranges: medium (30-60 mesh) and fine (60-120 mesh). Either delivers 500,000 USP Vitamin A units per gram. Also available with added vitamin D_2.

leaders in research and production of vitamin A

DPi

Also . . . vitamin E . . . distilled monoglycerides . . . some 3800 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**

should the issued patent be declared invalid or be superseded, does not expect to maintain a restricting position.

Lilly Wins Round Against New Jersey

The Supreme Court agreed to review a New Jersey court ruling that bars an out-of-state manufacturer from enforcing minimum resale price agreements in state courts unless the company registers to do business in the state.

Eli Lilly and Company, the pharmaceuticals manufacturer that appealed the decision of the New Jersey Supreme Court, insisted the state was suddenly trying to change the rules under which corporations have operated in various states for years.

"If American business were now told that . . . interstate corporations large and small can now be required to comply with 50 different sets of state corporation laws—with their varying requirements as to filing reports, payment of fees and taxes and subjection to jurisdiction—the result would be an intolerable burden on the free flow of interstate commerce," the company asserted.

Lilly's trouble in New Jersey began when the company sought a court order to force a drug retailer to adhere to "fair trade" prices. Though the retailer had not signed a "fair trade" agreement with Lilly, state law requires all companies to observe manufacturer-fixed price minimums.

The state court refused to consider the suit, however, because the manufacturer, although engaged in extensive business within the state, failed to register with the New Jersey Secretary of State.

The state registration law requires each company doing business within New Jersey to file a copy of its certificate of incorporation and a statement telling the amount of its authorized and issued capital stock, the nature of its busines in the state, and the addresses of its principal office and agents in the state.

In its petition to the U. S. Supreme Court, Eli Lilly insisted a long-standing constitutional doctrine embraced by most states prohibits application of state "qualification" statutes to out-of-state corporations engaged essentially in interstate business. Therefore, it argued, New Jersey has no right to require out-of-state companies to obtain authority from the state to do business within its borders, or to bar concerns that refuse from access to state courts.

Drug Counterfeiting

Recent publicity about counterfeiting of brand-name drugs re-emphasizes the size and scope of this public health problem and threat to legitimate manufacturers. One major drug company found that 12 per cent of prescriptions calling for its products were partially or wholly filled with unbranded substitutes.

This practice of switching to generic-named and counterfeit preparations is growing beyond the bounds of private policing and must be controlled by vigorous official action and public awareness. Past concern that public and medical profession confidence in the quality and manufacturing control of branded drugs might be undermined by emphasis on counterfeiting seems to be giving way to the more realistic attitude that the physician and patient can help themselves be better served.

Switching is illegal. The marginal druggist seeking a dishonest additional profit might first be tempted to substitute a lower priced generic-named item for the brand-named product that costs more because of the additional manufacturing care and pride of workmanship that the brand-name producer has paid for. When the temptation is presented, it is only a short step for this druggist to take to accept the offer of counterfeits which look more like the legitimate product and would be harder to detect. When he is caught he can even plead that his supplier maintained that the counterfeit was a specially acquired bargain-priced lot of the legitimate drug and the druggist was merely an innocent victim.

More vigorous policing thus is imperative to prevent the dispensing of unauthorized substitutes and to assure the physician that he is providing his patient with the best possible medication.

Drug Advertising

The drug industry seems to be in the process of reappraising its advertising techniques. Whether or not these changes are being brought about by recent Congressional investigations, they seem to be moving in the direction of more effective utilization of budgets. Some of the direct mail overwhelming physicians may not be there in the future.

The Upjohn Company has dropped its weekly "Scope," estimated by outside sources to cost more than $1 million a year, and will use the savings in other advertising media. Ciba is also dropping its "Medical News," while Abbott will discontinue such good-will items as technical and scientific booklets and motion picture films. Eli Lilly and Company expects to maintain its total promotional budget for 1961 at the 1960 and 1959 levels, but direct mail will be reduced.

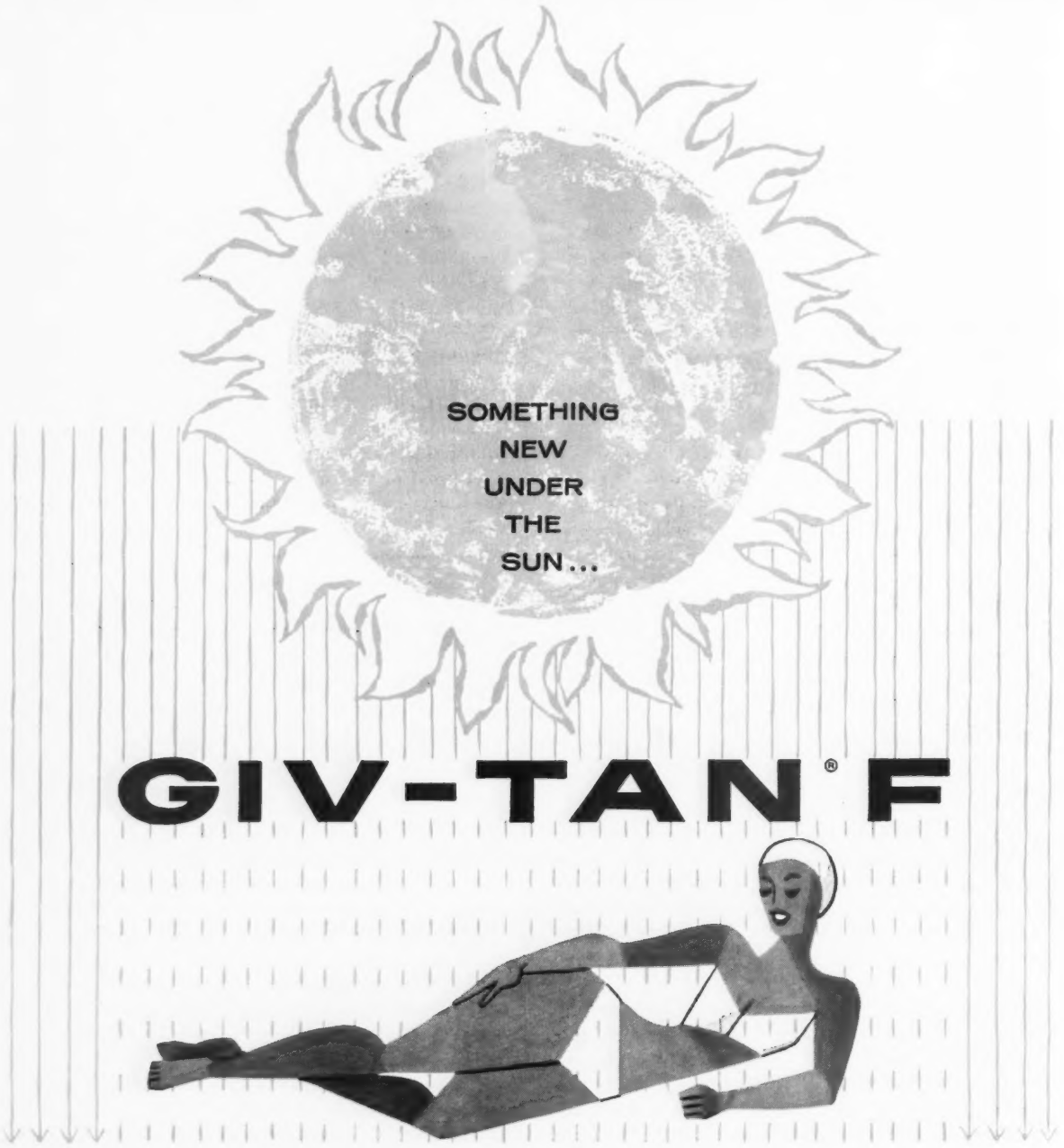
Russian Perfumes in Britain

As a result of the recent British-Soviet Trade Agreement, Boots Ltd. in England will import Soviet fragrances called Moscow Fires, Kremlin, and Crimean Violet to sell at retail prices ranging from 10 shillings ($1.40) for a small vial to five guineas ($14.70) for a gift box assortment.

As part of the exchange, Moscow retail stores will offer Boots creams, face powders, and a wide range of lipstick shades, but indicated no interest in eye shadow.

New Product Competition

The current new products race is particularly noticeable in soaps and toilet goods, but is slowing down in the drug industry.



GIV-TAN F is a new sunscreening agent developed by Sindar's research laboratories to increase the efficiency and sales appeal of your suntan product. It enables you to provide maximum sunburn protection—and the deep, lasting, bronze-like tan your customers want—at savings up to 50%!

GIV-TAN F is easy to use. Being a miscible oil, it dissolves and mixes readily in all media normally employed for sunscreen preparations. As an oil it offers special qualities that enhance the cosmetic elegance of your product.

GIV-TAN F is stable in solution and under exposure to sunlight... proved in field and laboratory tests... harmless to fabrics... non-irritating to the skin. It is extremely economical in any type of suntan preparation or sunburn preventive—in hydro-alcoholic solutions, oils, lotions, creams and other products.

We are ready to give you complete information on GIV-TAN F and full cooperation in using it to the best advantage in your preparations.

SINDAR® Corporation
321 West 44th Street
New York 36, N. Y.

Lever Brothers is currently test-marketing eight products and expects to introduce more; they include a liquid scouring agent with a suspended abrasive and a shampoo locked into quilted squares for easier application. Colgate-Palmolive is test-marketing a tooth brush with two outer rows of soft bristles and two inner rows with hard ones, as well as a facial soap in three different forms for dry, regular, and oily skins.

On the other hand, the flow of new ethical drugs has slowed, and industry spokesmen blame the FDA. The agency, perhaps sensitive to criticism in recent Senate investigations, has been much slower and more cautious in passing on New Drug Applications and has even called back some recent approvals for further investigation.

Science in Advertising

In this issue, we are happy to present the text of the paper given by Earl W. Kinter, Chairman of the Federal Trade Commission, at the fall symposium sponsored by the Association of Consulting Chemists and Chemical Engineers. Other panelists included Kenneth B. Willson, president of the National Better Business Bureau, Inc.; Frank White, vice-chairman of the board of McCann Erickson; S. R. Bernstein, editorial director of *Advertising Age;* and Cameron Day, managing editor of *Printers' Ink.* The symposium moderator was Dr. Erwin DiCyan, of DiCyan & Brown.

In his remarks, Dr. DiCyan pointed out that an objective assessment of advertising should take into consideration that this means of commercial information dissemination is the bedrock of our economy of plenty and integrally involved with our living standard. Science, he further pointed out, has been responsible for advances in our living standards far beyond its relatively small direct role in advertising.

FTC Actions

The Mennen Co., Morristown, N. J., has used deceptive "artifices" in a television commercial supposedly showing the superiority of its "Mennen Sof' Stroke" over competing brands of aerosol shaving creams, according to a Federal Trade Commission charge.

The challenged TV demonstration shows a skin diver with a heavy growth of beard jumping into water about six to eight feet deep. He first shows how competing brands will rapidly dissipate in the hand before being applied to the beard. He then discharges Mennen Sof' Stroke into his cupped hand, applies it to his face, and starts to shave.

The FTC complaint charges that the purported Mennen Sof' Stroke applied to the skin diver's face was actually a mixture of toothpaste and shaving cream, and the diver cupped his hand to a lesser degree in discharging the competing brand. The complaint thus alleges that this demonstration is not a valid portrayal of the superiority of the named product in the presence of moisture, over competing brands of aerosol shaving cream, and also falsely disparages these competitive products.

The company has been given 30 days in which to file an answer to the complaint.

Master Merchandise Corp. and *Codell, Inc.*, New York City, were charged by the FTC with misrepresenting that the domestic perfumes they distribute are French imports.

The complaint alleges that the concerns printed the name "Paris" and the brand names "Rue De L'Amour" and "Cafe Rouge" on the cartons of certain of their domestic perfumes. They also attached stickers bearing the phrase "Concentre fabrique avec essences de France" in connection with the tricolor of France.

The perfumes actually were manufactured in the United States, the complaint says. Although small amounts of essences imported from France may have been used in the compounding, the major portion of the ingredients was of domestic origin, the complaint adds.

Pierre Marche, Inc., and *Hallmark Distributors, Inc.*, St. Louis, Mo., were charged by the Federal Trade Commission with falsely representing that perfumes they manufacture and distribute are French imports.

The complaint alleges that the respondents have misrepresented the origin of their "Spring Madness" perfume by packaging it in containers displaying scenes of French life and monuments such as the Eiffel Tower and the Arch de Triomphe. The packages also carry a sticker of the French Tricolor and various other representations implying that the perfume is imported from France.

Furthermore, the complaint says, other perfumes sold by respondents are falsely labeled as to the usual and customary selling price. A final charge is that respondents misrepresented on labels that they operate places of business in New York and Paris.

Cutter Laboratories, Inc., Berkeley, Calif., has consented to a Federal Trade Commission order forbidding it to charge competing customers different net prices for its human and animal biologicals and pharmaceuticals or other products.

The complaint charged that high-volume purchasers receive better prices than competing low-volume customers in Cutter Laboratories' two general lines, "human products" and "veterinary products," in violation of Section 2(a) of the Robinson-Patman Amendment to the Clayton Act.

The agreement is for settlement purposes only and does not constitute an admission by the company that it has violated the law.

Lanolin Plus was charged by the FTC with misrepresenting its product Rybutol as being an effective treatment for tiredness, for loss of a sense of well-being and for feeling and appearing older than one should.

Actually, the FTC said, Rybutol would be beneficial only in a small minority of cases where infirmities

result from a deficiency in one or more of the nutrients in the preparation.

Morton Edell, president of Lanolin Plus, denied the charge. He said:

"We feel our advertising is exactly right. In essence we tell the public that Rybutol will help them and. if not, they should see a doctor."

Mr. Edell said that he felt that the Government was seeking to reopen a case it had lost in Federal Court ten years before. The case had involved the previous owners of Rybutol and the company's advertising program at that time.

Nine Month Sales and Earnings

Abbott Laboratories sales for the nine months ended September 30 rose 2.0 per cent, but earnings declined 6.2 per cent from the corresponding period of 1959. Nine month sales were $96,952,000, compared with $95,025,000, while corresponding earnings were $9,883,000 and $10,535,000, respectively. Third quarter sales in 1960, compared with 1959. were down by 5 per cent, while earnings declined by 17.7 per cent. Among the factors involved in the third quarter decline were competitive price reductions in antibiotics.

American Cyanamid Company's net earnings for the nine months ended September 30 were $36,970,000, a decrease of 8 per cent from the $40,028,000 earned in the same period of 1959. Sales for the first three quarters of 1960 and 1959 were substantially the same, $442,004,000 and $442,007,000, respectively. Earnings in the third quarter of 1960 were $8,533,000, compared with $12,852,000 for the same quarter in 1959. Sales in the corresponding periods declined to $136,850,000 from $144,510,000.

Consolidated sales of *American Hospital Supply Corporation* and subsidiary companies were $74,027,000 in the first nine months of 1960, 19.1 per cent ahead of the previous year's sales of $62,164,000 in the corresponding period. Net profit after taxes totaled $3,069,000, an increase of 10.3 per cent over earnings of $2,783,000 for the nine-month period of 1959.

Baxter Laboratories, Inc., reported sales for the first nine months of 1960 of $25,716,000, 21 per cent greater than the figure of $21,328,000 for the same period in the preceding year. Net earnings in these periods increased by 41 per cent from $1,322,000 to $1,858,000.

Chemway Corporation sales for the first nine months of 1960 totaled $6,745,000, compared with 1959 sales of $6,805,000. Net income for this period was $142,000 in 1960 and $355,000 in 1959.

Cutter Laboratories, Inc., net earnings declined 31 per cent in the first three quarters of 1960, from $861,000 in 1959 to $592,000, while sales increased from $16,297,000 to $17,421,000. The decline in net was attributed to depressed farm conditions affecting veterinary products sales, a severe drop in the price of blood fractions, and generally rising costs. The California State Supreme Court refused to hear the company's appeal of the first polio vaccine law suit decision and the ultimate impact is not yet known.

Johnson & Johnson's consolidated domestic sales for the first nine months of 1960 increased to $232,351,000 from $229,378,000 in 1959, while corresponding earnings were $12,986,000 and $12,753,000. Consolidated net earnings of foreign operations for the first nine months of 1960 amounted to $3,644,000, compared with $3,567,000 for the corresponding period of 1959 after provision of $300,000 for exchange conversion loss. Foreign sales were 16.1 per cent ahead of last year.

Eli Lilly and Company's sales for the first nine months of 1960 were $135.1 million, compared with $142.1 million for the 1959 period. Net income was $15.6 million, compared with $18.5 million for the first three quarters of 1959. Dollar volume of polio vaccine sales continued to drop during the third quarter because of lack of demand, and price reductions of some antibiotics also contributed to this.

For the nine months ended September 30, 1960, *Max Factor & Co.* sales were $41,595,000 compared with $37,651,000 in 1959, while net income declined slightly from $2,679,000 to $2,631,000. Sales for the month of October 1960 set a new record for any single month in the history of the company.

Net sales for the first nine months of 1960 by *Mead Johnson & Company* reached $77,832,000, compared with $44,236,000 for the same period of 1959, while net income increased from $4,128,000 to $10,371,000. Particularly important in the sales and profit performance has been Metrecal.

Net earnings of the *Norwich Pharmacal Company* for the first nine months of 1960 totaled $4,273,000, compared with $3,763,000 in the comparable 1959 period. Consolidated net sales for the 1960 period were $33,683,000, as compared with $29,575,000 in 1959.

Sales and profits of *Olin Mathieson Chemical Corporation* for the first nine months were approximately the same in 1960 and 1959. Sales were $527,752,000 for 1960, $529,782,000 in 1959, while net income amounted to $26,437,000 in 1960 and $26,752,000 in 1959.

Sales of *Chas. Pfizer & Co., Inc.*, rose to $201,612,000 in the first nine months of 1960, an increase of about 9 per cent over the $185,672,000 in 1959. Net earnings also increased, from $17,241,000 to $18,794,000.

Revlon, Inc., net sales increased to $95,025,000 from $88,743,000 in the first nine months of 1959. Earnings for the 1960 period were $7,800,000, compared with $7,483,000 in 1959.

Net earnings of *Rexall Drug and Chemical Company* for the nine months ended September 30, 1960 amounted to $6,409,000, compared with $6,064,000 in 1959. Total sales in the 1960 period were $178,683,000, compared with $163,178,000 in the preceding year.

SCIENCE IN ADVERTISING

The Distribution of Responsibility*

BY EARL W. KINTNER CHAIRMAN, FEDERAL TRADE COMMISSION

Section 15 of the Federal Trade Commission Act defines the term "false advertisement" in this manner:

"The term 'false advertisement' means an advertisement . . . which is misleading in a material respect; and in determining whether any advertisement is misleading, there shall be taken into account (among other things) not only representations made or suggested by statement, word, design, device, sound, or any combination thereof, but also the extent to which the advertisement fails to reveal facts material in the light of such representation or material with respect to consequences which may result from the use of the commodity to which the advertisement relates under the conditions prescribed in said advertisement, or under such conditions as are customary or usual. . . ."

Even though this definition applies by statute only to certain commodities, the definition contains important lessons for all advertisers. One lesson is that the law condemns the deceptive half-truth as well as the outright falsehood. Another is that an advertisement may be deceptive even though every statement within it is literally true, because it fails to disclose material facts. Still another is that an advertisement will be judged according to its total impression—a subtle qualification lost amid a welter of blatant puffing does not clothe an advertisement in the robes of legality.

These lessons are universal. They shape the role of science in advertising just as they shape every other element of advertising. To scientists there is nothing new about these lessons except their context. For the scientific method—the mighty weapon of Truth—requires the same total candor and the same necessity to impose limitations and qualifications upon absolutes that the law requires of advertising. All of us would do well to focus continually on these basic considerations as we proceed with our examination of the many-faceted role of science in advertising.

The Scientist's Responsibility

We are a nation of science worshippers. Unfortunately much of that worship is idolatrous and undiscerning. To many of our citizens the words "science" and "scientists" and pictures of laboratory garb

*Presented at the meeting of the Association of Consulting Chemists and Chemical Engineers, October 25, 1960, in New York City.

immediately engender a suspension of disbelief. The visual demonstration of a scientific "fact" in a laboratory setting and the straight-forward claim that "independent tests prove . . ." can produce startling results at the sales counter. The advertiser, the scientist and the Federal Trade Commission all have important responsibilities in insuring that these demonstrations actually demonstrate and that the tests actually prove. Each of these responsibilities is unique, but no combination of them is antithetical.

What is the view of the Federal Trade Commission toward independent scientific tests? In the atmosphere of disenchantment that so recently has surrounded the world of advertising much talk was heard to the effect that one of the basic elements of trickery in advertising was due to the habits of consulting scientists in producing the result that the client desired, not the result that empirical proof and logic dictate. I think it fair to say that these allegations have not been proved. The Federal Trade Commission has uncovered numerous instances of trickery in testing and undoubtedly it will continue to do so. But it has not condemned out-of-hand all testing conducted for advertisers. Therefore, we approach the work of independent laboratories and consultants without preconceived suspicion or bias. But it must also be said that the Commission gives no special weight to the fact that scientific tests supporting advertising claims were conducted by independent concerns. We treat all scientific claims alike regardless of source.

When our attention has been focused on an advertising claim supported by scientific testing, we commence our investigation by examining the raw data supporting the laboratory reports. In the course of this examination we employ a set of universal criteria regardless of the nature of the test examined. These are the questions that we ask:

1. Has the experiment been properly designed?
2. Has the experiment been performed correctly?
3. Have a significant number of tests been conducted?
4. Have the test results been recorded accurately? Are the results internally consistent and coherent?
5. Do the test results warrant the conclusions drawn?
6. Can the conclusion be expressed in a meaningful, accurate way to consumers who lack scientific training?

The distribution of responsibilities between the consulting scientist and the advertiser becomes clearer when we refer to these questions. The first four are addressed primarily to the scientist. They relate to method, not to characterization of results. The fifth question is hybrid. If the scientist states the conclusions to be drawn from the test results, then this criterion clearly lies within the realm of his responsibility. However, it has been our experience that the advertising agency often enters the picture at this point. Members of the agency staff often participate in the statement of conclusions and, in some instances, the agency has simply asked the scientist for his test results and then proceeded to state the conclusions without consultation. The sixth criterion principally relates to the responsibility of the agency. The agency's specialty is communication and it is at this point that communication skills take over.

One of my purposes is to make a plea to scientists to enlarge the scope of their responsibilities. I suggest that both the public interest and the self-interest of scientists demand that scientists insure that any conclusions drawn from the results of tests conducted by them are logical, accurate and strictly limited to the ambit of the results. I suggest also that the scientist has an immediate interest in insuring that conclusions are communicated to the consumer in an accurate and meaningful manner. The discharge of these additional responsibilities requires some imagination on the part of the scientist. Communication between scientists is often conducted in a kind of verbal shorthand. In addressing another scientist, a scientist can express a naked conclusion, knowing that his communicant understands any inherent limitations on the conclusion that may exist. But this form of shorthand cannot be used in communicating with the lay public for whom all limitations must be spelled out and great care must be exercised to prevent deception. I do not think it inappropriate to ask scientists to assume a measure of responsibility in these areas principally within the domain of the agencies.

If an advertisement based upon a scientist's test results is challenged by the Federal Trade Commission, his professional reputation will suffer even though the scientist is not himself subject to the pains and penalties of an order to cease and desist. Therefore, both the public interest and his self-interest dictate the full discharge of his professional responsibility in this area.

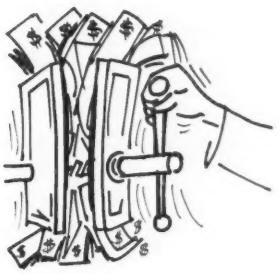
The Responsibility of Advertising

The heaviest responsibility for the truthfulness of advertising based on scientific claims must be borne by the advertising agency. Not only does the agency often assist in the statement of conclusions from test results and prepare the message that will be presented to the consuming public, but also the agency often conceives the tests and selects the testers. Obviously the agency must positively assure itself of the accuracy of test results. Obviously the agency must stand behind the messages it directs at the public. But I suggest that the agency must satisfy itself that the entire testing process is valid, honest and accurate. Agencies must be careful never to dictate or even indicate desired results to the tester. Agencies and advertisers must insist on a high order of technical backup from the testing concern. An agency does not satisfy its public responsibility merely by hiding behind the word of "Dr. So And So." The agency must check

(Continued on page 838)

PRESSURES on Pharmaceutical Prices

BY PETER BART



There's a great deal of talk these days about "the big profit squeeze" affecting many industries. Judging from third-quarter earnings reports, the talk is far from idle. Costs are distinctly on the upswing, while prices are fairly stable. The result: Generally lower profits.

On the whole, these tend to be short-term considerations. The drug business, however, also is facing a number of long-term forces that are clouding the profits outlook for manufacturer, wholesaler and pharmacist alike. Over the long pull these forces may prove a great deal harder to combat than current short-term cost problems.

At root, they consist of the mounting efforts of a variety of groups to reduce the costs of purchasing drugs. Drug prices, of course, have been given abundant publicity by the Kefauver committee and by articles in the press. As more consumers have become price-conscious about drugs, so more groups have attempted to circumvent the traditional channels of drug distribution.

A typical result is the newly devised Medstore Plan in New York City, whereby 13 unions hope to set up a chain of cut-rate drug stores for their members. Meanwhile, several groups recently have initiated nonprofit mail order services for prescription drugs.

Most important of all, the Government has sharply increased its purchases of drugs from abroad at the expense of domestic producers. While this, of course, is a problem unto itself, it nonetheless is part of the broad pattern—that of knocking down drug prices through any available channel.

The magnitude of the Government's new drug-buying plans was brought into focus recently when the Veterans Administration said it would follow the lead of the Military Medical Supply Agency in purchasing certain drugs overseas.

The Military group, which buys for the armed forces, has spent some $3,471,000 in drugs from foreign manufacturers—chiefly meprobamate and nitrofurantion. The Agency estimates it has saved $2,599,000 as a result of its policies.

The executive director of the Agency, Rear Admiral W. L. Knickerbocker, told the Kefauver committee that he buys abroad only when he considers domestic products to be overpriced. In the case of "reasonably priced" products, he said, the foreign companies have not attempted to compete.

The drug producers, as might be expected, have openly criticized Admiral Knickerbocker's policies. They have argued that overseas purchases infringe on their patent rights, and that they spend millions on research while foreign companies merely appropriate at will the fruits of this research.

Earlier, Chas. Pfizer & Co., which claims patent rights on tetracycline, a common antibiotic, protested a Government purchase from an Italian company on the grounds that it had not licensed the foreign producer to manufacture the drug. However the U. S. Comptroller General ruled that a Government agency cannot be required to reject a favorable bid from an overseas manufacturer solely on the ground of patent infringement. Pfizer could seek indemnification from the U. S. Government, the ruling said, but not from the foreign supplier.

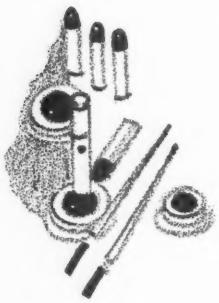
The pressures of the American drug makers, therefore, have not proved very effective. This was made all the more evident by the announcement by the Veterans Administration that it would buy tranquilizers abroad. The V.A. contracted to buy meprobamate from A. S. Syntetic, a Danish company, at a price estimated to be less than 25 per cent of the regular domestic price, even after inclusion of import duties, inspection fees and transportation costs.

The first purchase was for $65,000, or a three-months supply for the V.A.'s 170 hospitals. The V.A. had been buying meprobamate from the Wallace Laboratories division of Carter Products, Inc., and from the Wyeth Laboratories division of American Home Products Corp. Wallace makes meprobmate under the trade name Miltown, while Wyeth uses the name Equanil. The price of these purchases was understood to be about $19.25 for a bottle of 500 tablets.

The Danish company, however, entered a bid of

(*Continued on page 839*)

COLOR ADDITIVES FOR COSMETICS AND DRUGS



New Rules For Using Color Additives In Cosmetic and Drug Preparations

BY H. D. GOULDEN SCIENTIFIC DIRECTOR, TOILET GOODS ASSOCIATION

Public Law 86-618, "Color Additives Amendments of 1960," was passed by the Eighty-sixth Congress and approved on July 12, 1960. This Act amends the Federal Food, Drug and Cosmetic Act to authorize the use of color additives in foods, drugs and cosmetics and to set down regulations prescribing conditions for the safe use of the additives. Transitional regulations now issued under the provisions of these new amendments will be interpreted here in such a way that the manufacturer may determine what color additives may be used in the various product categories. These transitional regulations will be in effect until superseded by permanent regulations. The transitional period is 30 months from July 12, 1960, and may be extended under certain conditions. Permanent tolerances may be established at any time data are at hand to justify such tolerance.

The Amendments define a color additive: which—

"(1) The term 'color additive' means a material

"(A) is a dye, pigment, or other substance made by a process of synthesis or similar artifice, or extracted, isolated, or otherwise derived, with or without intermediate or final change of identity, from a vegetable, animal, mineral or other source, and

"(B) when added or applied to a food, drug, or cosmetic, or to the human body or any part thereof, is capable (alone or through reaction with other substance) of imparting color thereto; except that such term does not include any material which the Secretary, by regulation, determines is used (or intended to be used) solely for a purpose or purposes other than coloring.

"(2) The term 'color' includes black, white and intermediate grays."

It is particularly important to note that the Secretary may determine that a material is *not* a color additive only if it is used solely for a purpose other than for coloring, and that black, white, and grays are considered to be colors.

On the basis of the Color Additives Amendment, color additives may be grouped in various categories or lists of those permitted for certain applications, and not for others. These applications may generally be classified as externally applied cosmetics, lipsticks, externally applied drugs, and ingested drugs.

Eye preparations are subject to special criteria: No

LIST A

F D & C	Greens	Nos. 1, 2, 3
F D & C	Yellows	Nos. 5, 6
F D & C	Reds	Nos. 2, 3, 4
F D & C	Blues	Nos. 1, 2
F D & C	Violet	No. 1

This list also includes lakes made by extending aluminum or calcium salts of certifiable water-soluble straight colors in this list, on a substratum of alumina.

LIST B

SUB-LIST B-I

D & C	Greens	Nos. 5, 6, 7, 8
D & C	Yellows	Nos. 10, 11
D & C	Reds	Nos. 5, 6, 7, 14, 17, 18, 21, 22, 24, 27, 28, 29, 30, 31, 34, 35, 36, 38, 39
D & C	Oranges	Nos. 8, 10, 11, 14, 15, 16
D & C	Brown	No. 1
D & C	Blues	Nos. 4, 6, 7, 9
D & C	Black	No. 1
D & C	Violet	No. 2

SUB-LIST B-II

D & C	Reds	Nos. 8, 9, 10, 11, 12, 13, 19, 33
D & C	Oranges	Nos. 3, 4, 5, 17

SUB-LIST B-III

D & C	Reds	Nos. 8, 19, 33, 37
D & C	Oranges	Nos. 3, 4, 5

SUB-LIST B-IV

D & C	Yellows	Nos. 7, 8

This list also includes lakes made by using colors in List A and List B, as the sodium, potassium, aluminum, barium, calcium, strontium or zirconium salts, extended on a substratum of alumina, blanc fixe, gloss white, clay, titanium dioxide, zinc oxide, talc, rosin, aluminum benzoate, calcium carbonate or any combination of two or more of these.

LIST C

Ext. D & C	Yellows	Nos. 1, 3, 5, 6, 7
Ext. D & C	Reds	Nos. 1, 2, 3, 8, 10, 11, 13, 14
Ext. D & C	Blues	Nos. 1, 4
Ext. D & C	Green	No. 1
Ext. D & C	Violet	No. 2
Ext. D & C	Oranges	Nos. 1, 3, 4

This list also includes lakes made by combining these dyes, when they are sodium, potassium, barium or calcium salts, or when they have been converted to sodium, potassium, aluminum, barium, calcium, strontium or zirconium salts, with a substratum of alumina, blanc fixe, gloss white, clay, titanium dioxide, zinc oxide, talc, rosin, aluminum benzoate, calcium carbonate or any combination of two or more of these.

LIST D

Provisionally listed for cosmetic use on the basis of prior commercial sale, and not previously subject to certification. (It is our interpretation that these color additives are permitted for the same use or uses in cosmetics as they enjoyed prior to July 12, 1960.):

Alloxan
Aluminum powder
Barium sulfate
Bentonite
Bismuth oxychloride
Bronze powder
Calcium carbonate
Calcium silicate
Calcium sulfate
Carbon black (channel process)
Chlorophyll copper complex
Chlorophyllin copper complex
Chromium oxide greens
Cobaltous aluminate (cobalt blue)
Cochineal
Copper, metallic powder
Dihydroxyacetone
Fuller's earth
Gold
Iron oxides
Kaolin
Kieselguhr (diatomite)
Lapis lazuli (lazurite)
Lithopone
Logwood (bluewood, campeche wood)
Magnesium carbonate
Manganese violet
[probably $(NH_4)_2Mn_2(P_2O_7)_2$]
Potassium ferrocyanide
Talc
Tin oxide
Ultramarine blue
Zinc oxide
Zirconium oxide
Zirconium silicate

LIST E

Provisionally listed for drug use on the basis of prior commercial sale, and not previously subject to certification. (It is our interpretation that these color additives are permitted for the same use or uses as they enjoyed prior to July 12, 1960.):

Carotene, natural and synthetic
Charcoal (N.F. XI)
Chlorophyll copper complex
Chlorophyllin copper complex
Cochineal
Logwood
Iron oxides
Titanium dioxide

coal tar colors, that is, none in lists A, B, and C, may be used in the area of the eye. This term means "the area enclosed within the circumference of the supra-orbital ridge and the infra-orbital ridge, including the eyebrow, the skin below the eyebrow, the eyelids and the eyelashes, the conjunctival sac of the eye, the eyeball, and the soft areolar tissue that lies within the perimeter of the infra-orbital ridge." Eye preparations for use in and around the eye thus continue

to be special products with limitations beyond those imposed on other externally or internally applied preparations.

Externally applied drugs and cosmetics are those applied only to external parts of the body, the skin surface, and not to the lips or any body surface covered by mucous membranes. Color additives to be used without restriction as to amount in externally applied cosmetics can be taken from Lists A, B, C, and D, including synthetic beta-carotene if it was so used before July 12, 1960. For externally applied drugs, the applicable Lists are A, B, C, and E, and synthetic beta-carotene if so used before July 12, 1960.

For lipsticks, color additives may be used without restriction when selected from Lists A, D, and from Sub-List B-I, and including beta-carotene in use before July 12, 1960. In addition, the reds and oranges in Sub-List B-II can be used on a restricted basis. This restriction, as a temporary tolerance, permits the use of the B-II group of colors to the extent of not more than 6 per cent of pure dye, singly or in combination, in the lipstick.

Ingested drugs include drugs and proprietary products for internal use, and other products such as mouth washes and dentifrices, which are subject to ingestion. Color additives selected from Lists A, E, and Sub-List B-I, may be used without restriction. Colors in Sub-List B-III may also be used in ingested drugs, but are restricted in quantity so that no more than 0.75 mg. of pure dye from any one or more of the color additives from this List may be included in the amount of product which might reasonably be expected to be ingested in one day. Thus, if the expected daily dose of a tinted compressed or coated tablet is 6 tablets, each tablet may contain not more than a total of 0.125 mg. of all pure colors from Sub-List B-III.

Where temporary tolerances have been set, it has been done on a pure dye basis. Some color additives have a high pure dye content; others, such as the lakes, are lower. The pure dye content appears on the label of the certified color container. Permitted color additives from other lists may be used without influencing the quantity of the restricted colors.

Lists D and E include noncertified color additives commercially sold and used in cosmetics and drugs before July 12, 1960, and now provisionally listed

(Continued on page 842)

ILLUSTRATIONS COURTESY MERCK, SHARP & DOHME

A scene painted in 1665 by Gerard Dou depicting the physician coping with dropsy, as edema was then called. Excess fluid in the body is probably as ancient an illness as the practice of medicine itself.

DIURIL Creates a New Market

BY MILTON MOSKOWITZ

The "wonder drug era" ushered in by penicillin has brought many scientific breakthroughs, resulting in a tremendous expansion of the pharmaceutical industry. The premium has been on *new* products, actively promoted before they are rendered obsolete by *newer* ones. The industry's big research budgets are geared to outdate existing products. The equally imposing budgets for advertising and sales promotion are geared to alert physicians immediately about the new discoveries.

The marketing of a new drug is an exciting process. It brings to fruition work done in the company's laboratories, work that has often stretched over many years. A new drug—if is is really new—is the best face a manufacturer can wear. In today's competitive climate it is virtually a company's *raison d'etre*. For the advertising copywriter or company detail man, the new drug is a welcome assignment in spades, because it means dealing with fresh material, communicating new findings, and helping doctors treat their patients more effectively.

Inevitably, the marketing situation also resembles a war. In introducing a new drug, a manufacturer seeks to strengthen his hold on a market or to displace competitors from a market. Even when an entirely new type of drug is being introduced and presumably has no competition, battle strategy is never far from the scene. A manufacturer must take into account the products currently in use and the strong likelihood that a successful new product will spawn a host of imitators and would-be improvements. It has become a byword in the pharmaceutical industry that, if you don't have a competitor today, you will by tomorrow. For example, The Upjohn Co. is now chalking up an annual volume of $30,000,000 in Orinase, the oral antidiabetic it introduced several years ago. Orinase was the first product of its kind. Previously, the principal therapy was insulin, a market dominated for many years by Eli Lilly and Company. Insulin sales have contracted—but not substantially. It would seem that Orinase's introduction has expanded the total market by bringing under medical care diabetics who formerly were not treated. Today, there are three oral antidiabetics on the

market, but Upjohn has succeeded in retaining the lion's share of the business. Moral: Victory goes to the sure-footed who are fleet-footed as well.

This is a long preamble to a discussion of the market for diuretics, a market that has been revolutionized since 1958. Abnormal accumulation of fluids in the body is a medical problem dating back for centuries. Known as dropsy or edema, it is a condition associated with congestive heart failure and kidney diseases. Diuresis has been sought through a number of agents. Digitalis was one of the first to be used. Xanthine derivatives, beginning with caffeine in 1864, were the drugs of choice until 1919, when the organic mercurial compounds were introduced. The mercurials proved to be effective diuretics, but they were also the most dangerous because of their toxicity. After World War II, came the carbonic anhydrase inhibitors, derivatives of sulfonamide. Although less effective than the mercurials, they became more widely used because they were safer. Diamox (acetazoleamide), marketed by Lederle Laboratories in 1953, quickly established itself as the leader in the field. Upjohn marketed Cardrase (ethoxzolamide), and Lakeside Laboratories, a leading supplier of mercurials, also became a major producer of carbonic anhydrase inhibitors.

Even so, it remained a small market compared with the volume achieved by drug makers in other areas. In 1957, new prescriptions for diuretics totaled about 4,200,000. The entire market amounted to little more than $7,000,000 in manufacturer's sales.

Meanwhile, research in diuretic therapy was being conducted by other companies. One of the big programs was at G. D. Searle & Co., which had a major stake in this market with its xanthines, the aminophyllin group. Another program was in operation at the Merck Sharp & Dohme Division of Merck & Co.

The Merck Sharp & Dohme project dated from 1943. In its early stages it sought a drug that would slow down the excretion of penicillin, since as much as 80 per cent of this precious new antibiotic was being eliminated from the body before hitting the infection. Penicillin was being extracted from the urine of patients for reuse. Concentrating on sulfonamide compounds, Merck came up with an effective inhibitor Benemid, in 1951—only, as John T. Connor, president of Merck & Co., has pointed out, "It was born too late. During those eight years the industry had learned how to make penicillin so abundantly and cheaply that there no longer was any pressing need for a drug to inhibit its excretion."

Benemid turned out to be an effective agent in the treatment of gout—it increases the excretion of uric acid—and Merck continued its project after the discovery by Dr. William B. Schwartz that sulfanilamide is an effective diuretic in that it selects excess sodium for excretion through the kidneys. Lederle beat Merck to the punch with Diamox but, two years later in 1955, Merck scored a much more important breakthrough when it synthesized from the aromatic sulfonamides a new compound, chlorothiazide. The new compound, trademarked Diuril, was a major

(Continued on page 842)

A key step in large-scale production of Diuril is centrifuging to separate compounds used in earlier steps of production. The desired compound is deposited along the centrifuge sides, where it can be recovered.

COURTESY ELIZABETH ARDEN

Men's Fragrances

FORMULATIONS FROM THE CLASSIC COLOGNE TO MODERN BLENDS

BY J. R. ELLIOTT PERFUME CONSULTANT

As we have previously mentioned, the grandaddy of all men's fragrances is the classic Cologne Water first made in Cologne, Germany.

This early product was the outcome of an empirical processing operation, not a formulation as we understand it today. Since no one today laboriously distills fruit peels with herbs over potato alcohol, we will dismiss the original work and start instead at the point when essential oils first became available.

The classic cologne was fundamentally a citrus bouquet contrasted with lavender and rosemary, as the following formula illustrates.

EARLY ESSENTIAL OIL COLOGNE

80	Bergamot
60	Lemon
25	Sweet orange
25	Bitter orange
10	Rosemary
10	Lavender

In the beginning, this formulation of oils was charged into a still and distilled with alcohol and water. The only justification for this procedure is that it might have given a clearer solution than a direct mixture. It must be remembered that our modern filters, filter aids, and freezing procedures were not known in those times.

As simple and ancient as this formula is, it is still attractive when converted to a finished product with alcohol and water in our modern manner.

As time went on, the raw materials for cologne preparation increased in number and quality. And the technique of manufacture improved. The distillation of rose petals and orange flower products was perfected so that the "waters" and the separated oils came on the market. Human nature being progressive and inventive, advantage was taken of these changes. The composition of the classic cologne became considerably elaborated in formulation and finishing, as the subsequent formula shows.

This formulation is still within the framework of the classic cologne, but the dressing up is readily apparent. Fragrance formulas of this type were used in colognes imported from Europe, right up to the end of the Nineteenth Century.

IMPROVED CLASSIC COLOGNE

125	Tangerine oil
250	Lemon oil
350	Bergamot oil
100	Petitgrain oil
60	Neroli Bigarade
40	Rosemary oil
10	Geranium oil
25	Tincture ambergris
10	Bois de rose femelle
5	Ylang ylang oil
5	Peppermit oil

The alcohol used in the preparation of the finished colognes was often blended with some of the "floral waters" then popular, not for dilution but rather for so-called improvement of the alcohol. From this custom is derived our present use of a lower alcohol strength in our colognes, although we use distilled water and put the fragrance equivalent into the formulation as an oil.

Towards the end of the Nineteenth Century, colognes underwent a drastic change. The style of the classic cologne began to be employed as the background for new fragrances including floral and fantasy notes. The fougere came into prominence as a compromise with lavender to escape the curse that Oscar Wilde had unwittingly put on it. Then came the herbal fragrances. These were brilliant floral fragrances "lifted" with variations on the classic cologne theme, but harshened with herbal notes to minimize their suggestion of femininity.

In the early part of this century, the rapid advance of the synthetic perfume materials touched off a curious situation that gave the use of synthetics a substantial set-back, and established a word of contemptuous expression for bad taste in men's cologne, which remains to this day.

A competitive war started among the tonic makers over the rising market of the "bargain barbers," as the increasing numbers of less pretentious and lower-priced barbershops were sneeringly called. The various makers tried to outdo one another in the production of fragrances that were showy and inexpensive to make. As the intensity of competition rose, some of the results were incredibly bad, more resembling some of today's so-called industrial masks than acceptable men's products. Out of this fracas came the sneering epithet "barbershoppy," which still signifies a shabby, loud, uncouth, man's fragrance. In fact, it is even occasionally used to describe women's fragrances created with bad taste.

This fight turned into a strange three-cornered battle because of a third factor. The tonic makers fought viciously among themselves. But the remainder of the perfume trade savagely turned on the tonic people for their enouragement of the use of synthetics. They resented synthetics as an incursion into their "sacred" naturals that was likely to lead to a depreciation and destruction of their field with shabby competitive products. So, they battled the tonic makers to preserve the integrity of their own fragrances.

While it lasted, it was a real Donnybrook. Claims and counterclaims and rival brickbats were thrown, in the newspapers, via advertising and even editorials. In some instances handbills were actually passed out.

Religion was even involved. The substitution of synthetics for naturals was attacked as sacrilegious. "Natural oils were made by God and should be kept pure and undefiled," one statement had it. Synthetics were called "tools of the devil from lands alien to our wholesome great country," presumably because most chemicals were then imported.

Sex was even invoked in this competitive battle. A claim of one maker against another stated that "inhaling the fumes" of his competitor's hair tonic would result in "the decrease of man's vigor."

For a time, this scare-claim frightened more people than all the bellowing from the pulpits concerning synthetics as an instrument of Satan.

But the manufacturer ingeniously turned the tables by claiming that the story was a complete lie and inspired by jealousy; that, in fact, the exact opposite was true. He not only salvaged his business but actually expanded it.

Today this squabble sems absolutely ludicrous. It slowed progress and made two contributions to our vocabulary. "Barbershoppy" was established to denote a botched-up men's fragrance, and "synthetic" became a nasty nine-letter word, whose malevolence lasted well into the Twenties. Even today, some individuals claim that fragrances were so much better in the "good old days" when naturals dominated the scene.

To illustrate the ridiculousness of this synthetic-versus-natural brawl, we show the following formula taken from the ancient recipe book of one firm. The spelling is original. *(Continued on page 850)*

COURTESY THE MENNEN COMPANY

CREATIVITY IN RESEARCH

BY ROBERT L. GOLDEMBERG
DIRECTOR OF TOILETRIES RESEARCH, SHULTON, INC.

Creativity is said to be one-tenth inspiration, nine-tenths perspiration. Mr. Goldemberg offers valuable suggestions for the cosmetic research technician, to make the hard work more fruitful—and less arduous.

Many articles have turned up in recent technical journals concerning methods for promoting the flow of new ideas and stimulating creativity in general. These articles have dealt with various methods of "brainstorming" as a way of force-feeding the intellect, in the hope that the individuals involved will produce more than they would under normal circumstances. These schemes depend on the basic assumption that a sort of synergism exists within a group of specialists with differing technical backgrounds and that they must inevitably cross-fertilize each other's ideas, with a result greater than the sum of its parts.

I think that this happens only rarely, and that many of these "idea sessions" are held in vain, especially if the atmosphere is too intense or formal. Indeed, many persons feel that these deliberate attempts to stimulate new ideas are often the product of a research director's own insecurity—a feeling that his group is not delivering enough to satisfy management. If his own chemists catch this feeling during such idea sessions, the psychological atmosphere is probably not the most conducive to the desired results.

Laboratories and individuals all over the world are engaged in a constant and often grueling race to conceive new products, sell them to their own management, and eventually to the public. They get their inspiration for these new ideas from many sources. It is my purpose to examine the *normal* sources a little more closely. All too frequently, I think, we do not use them to full advantage.

The Military Intelligence Approach

My general thesis is that most new ideas come from a lot of routine, unglamourous hard work. The procedure can be likened to the gathering of military intelligence. Only a very small percentage of intelligence information comes from the spies involved in cloak and dagger work. Most of it is gathered laboriously from routine sources available to everyone who speaks the language and knows the country —road maps, newspaper stories, technical journals, production quotas in official edicts, and the like. Back at intelligence headquarters, all this information is sifted and abstracted, filed and cross-indexed, until the total picture gradually begins to emerge. A particular aspect of the enemy country is thus pinpointed with a surety that no dramatic single report from any spy could equal.

To a considerable degree, the job of a research director must also be to gather and collate as much data as possible which will stimulate the technicians working for him. In turn, these technicians must be trained to be alert for such information, and to pass it into the central files and to their fellow workers.

Research groups involved in producing new consumer items soon find that the information pub-

lished in their own trade journals, although directly applicable to their work, is insufficient as the sole source of stimulation for new ideas. Due to the secrecy dictated by competitive pressures, such information is generally dated, if published by competitors directly involved in producing similar items. If, on the other hand, the information is published by suppliers to the trade, the information is often more up to date, but one always has a lingering doubt regarding possible bias in the compiling of the data. Furthermore, suppliers publishing such data often make it a practice to release the information to their favored customers in advance. Data released by suppliers is often compiled as a result of preliminary investigation done in cooperation with such a favored customer. Knowledge of such practices can sometimes dampen the enthusiasm of a formulating chemist reading the information for the first time. At other times, of course, it can make him quite frantic!

Let us examine some of the many other sources of information readily available to anyone in the field of cosmetics and toiletries formulation, sources we all should consult more often, regardless of the exigencies of the daily work load.

Purely Technical Journals

These are often the prime source of information for the formulating chemist. As already stated, however, he should not confine his reading to the *Journal of the Society of Cosmetic Chemists* or the *Proceedings of the Scientific Section of the Toilet Goods Association*. How many of us regularly scan the sections on drugs and cosmetics, textile dyes, leather, paints, and the like in *Chemical Abstracts?* When have you last read a copy of the *Journal of Investigative Dermatology?* There are many other medical journals of interest to the cosmetic chemist. There are also specialized journals put out by professional societies, for instance, the leather chemists, textile chemists, and soap and oil chemists. Each of these groups often touches on problems closely related to our own work. Information in such allied journals is also somewhat limited by secrecy requirements in their own trade, but information of direct use to a chemist in allied fields will often appear quite freely, for the simple reason that the author has no stake in fields other than his own.

As an example, a letter from some Swedish correspondents to the editor of the *Journal of the Textile Research Institute* a few years ago revealed the fascinating information (to a hair dye specialist) that the use of certain solvents could increase tenfold the dyeing rates on wool, allowing certain dyes to be applied cold instead of at the boil as was previously required. Many hair dye formulations today use this information directly, but there was a lag of 18 months before it appeared in a *cosmetic* journal. Cosmetic chemists who read it in the TRI journal thus had a lead of a year and a half on others in our trade.

A few technical journals have an added valuable feature. They themselves abstract the latest developments in fields allied to their particular work. An excellent example of this is the British *Journal of the Society of Dyers and Colourists*. It offers much valuable information on pigments, leather, and furs, as well as the expected textile dyeing information.

Trade Journals and Technical News Magazines

The prime purpose of such journals is to report on the latest developments in their field. Some trade journals make no pretense of publishing original information. Some try for a balance between doing so and reporting on general trade news. Others make a special point of actually abstracting technical literature relevant to their field. The latter are especially valuable to the working chemist, since they can save him much time as well as money for such things as special patent services. Trade journals, news magazines and trade newspapers of interest to the drug and toiletries trade include DRUG AND COSMETIC INDUSTRY, *The American Perfumer*, *Chemical Week*, *The Oil Paint and Drug Reporter*, *Chemical Processing*, *Soap, Perfumery and Cosmetics*, *Drug Trade News*, and *Aerosol Age*.

One of the greatest benefits often overlooked in trade journals is the advertisements. Many chemists scan the table of contents for technical articles and promptly pass the publication on to others when they see nothing of direct interest. This is often foolish. New items of interest for either formulating or packaging are generally first announced in ads in such journals. New uses for old products and even complete technical data and specifications are also often run as advertisements. Many individual companies do this regularly, and some industry associations such as that of the glycerine producers have also started to run this type of informative ad. Other companies will simply run a "teaser" ad, inviting

(Continued on page 836)

MODERN OXIDATION HAIR DYES

BY MARVIN K. COOK CONSULTING CHEMIST

COURTESY CLAIROL

Amino dye compounds are essentially intermediates, since coloring effects are produced only after oxidation. Actually, numerous amino compounds are capable of providing a wide variety of shades, but relatively few are suitable for human hair dyeing. Certain alkyl derivatives, for example, are not used, since they are known skin irritants. Other compounds develop color too slowly and, for that reason, are not applicable in modern dye compositions where speed is an important requirement.

Fundamentally, the oxidation dye mixture comprises the dye-forming intermediates, color modifiers and stabilizers. Only those intermediates which are oxidizable to a quinoid structure are capable of tinting the hair. Nevertheless, certain compounds that do not form dyes upon oxidation are utilized as modifiers and stabilizers.

At this point, it is important to mention that dye purity is of considerable significance and chemically pure grades are not necessarily a criterion in dye selection. To illustrate, chemically pure meta compounds do not form dyes, after oxidation. On the other hand, technical grade meta-diamines contain traces of ortho and para isomers which are capable of producing color.

Despite the considerable improvement in the manufacture of intermediates and related compounds, it is essential to rely upon a specific source of supply and a known quality, to assure consistent uniformity. Color shades may be significantly altered by substituting compounds from different manufacturing sources, particularly when purity is a relative matter. In general, many of the intermediates employed are technical grade materials, and manufacturing methods, impurities, metallic contaminants and isomers may vary markedly from supplier to supplier.

Intermediates are never used alone, as the shades produced after oxidation are not usually natural and sometimes tend to fade. By combining the various intermediates with stabilizers and modifiers, a complete series of natural permanent shades are obtained. Nevertheless, it is helpful to know the behavior of individual intermediates and related compounds. The following charts indicate the colors produced by some of the more important intermediates on human hair. Technical grade compounds were dissolved in hydro-alcohol solutions, adjusted to a *p*H of 9.2, and mixed with equal parts of 20-volume hydrogen peroxide.

AROMATIC DIAMINES	
p-Phenylenediamine	Dark brown
m-Phenylenediamine	Gold
o-Phenylenediamine	Yellow gold
2,4-Diaminoanisole	Blonde

AMINO PHENOLS	
p-Aminophenol	Auburn
o-Aminophenol	Gold
2,4-Diaminophenol	Red brown

NITRO COMPOUNDS	
2-Nitro-p-phenylenediamine	Auburn
4-Nitro-o-phenylenediamine	Green yellow

Modifiers and stabilizers include such compounds as the meta-diamines, resorcinol, pyrocatechol, pyrogallol, diaminoanisole and diaminophenetole. In the case of direct, color-forming intermediates, the initial oxidation stage forms a quinone-di-imide. Alone, the intermediate, on further oxidation, produces a condensation of the quinoid, and subsequent oxidation yields the complex dye. If other compounds including diamines, phenolic compounds or aminophenols are incorporated, mixed condensations will provide different dye complexes. Furthermore, in many instances the resultant colors are stabilized.

By combining p-phenylenediamine with phenols,

a very important and useful series of dyes are obtained, as shown in the following chart:

PARA-PHENYLENEDIAMINE PLUS VARIOUS POLYHYDRIC PHENOLS

p-Phenylenediamine +	pyrocatechol	Gray
p-Phenylenediamine +	resorcinol	Greenish brown
p-Phenylenediamine +	pyrogallol	Gold
p-Phenylenediamine +	hydroquinone	Golden brown

COURTESY ROUX

Modifiers must be used with considerable care and skill, as minute quantities are usually sufficient to achieve the desired effect. They are vital in the formulation of the so-called toners which embrace the very popular grayish tones which include silver, smoke and steel gray. In this application, the meta-phenylenediamines are quite useful since they form blue or purple shades with the para-diamines.

PARA-DIAMINES PLUS META-DIAMINES

p-Phenylenediamine +	meta-phenylene diamine	Purple
p-Phenylenediamine +	2,4-diaminoanisole	Blue

The blue or purple note, when introduced in blonde shades, will form ash blonde; in black dyes, the incorporation of this note will provide intense blue-black shades. Because these bluing modifiers are not usually light-fast, they are more difficult to handle.

The oxidation dye formulations given below will serve to present the general anatomy of these compositions. So many factors are involved in oxidation dye formulation that, at best, they should be considered illustrative, rather than final. Moreover, even the very best formulas, from a laboratory standpoint, may fail catastrophically in the hands of a competent hair colorist and, worse still, on the hair of a home consumer.

Modern oxidation hair dyes are generally recognized as safe products, especially when preliminary patch tests are carefully followed. The patch test, as proposed by Sabouraud in 1911, is universally used as a precautionary measure. In the United States, Federal law requires a specific cautionary statement, as follows:

"This product contains ingredients which may cause skin irritation on certain individuals and a

(*Continued on page 846*)

FORMULA NO. 1—BLACK

p-Phenylenediamine	4.00%
2,4-Diaminoanisole	1.25
1,5-Dihydroxynaphthalene	0.10
p-Aminodiphenylamine	0.07
4-Nitro-o-phenylenediamine	0.10
Ammonium hydroxide	q.s.
Sodium sulfite	q.s.
Dye base, to make	100.00%

COURTESY NESTLE-LEMUR CO.

FORMULA NO. 2—DARK BROWN

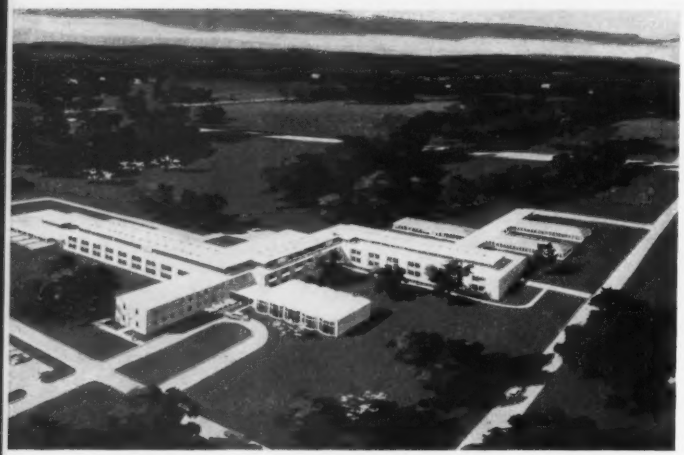
p-Phenylenediamine	1.70%
2,4-Diaminoanisole	0.60
4-Amino-2-nitrophenol	0.12
p-Aminophenol	0.15
2-Nitro-p-phenylenediamine	0.05
Pyrogallol	0.30
Resorcinol	1.70
Ammonium hydroxide	q.s.
Sodium sulfite	q.s.
Dye base, to make	100.0%

FORMULA NO. 3—MEDIUM BROWN

p-Phenylenediamine	2.00%
p-Aminodiphenylamine	0.16
o-Aminophenol	0.25
4-Nitro-1,2-diaminobenzene	0.20
Resorcinol	1.50
Ammonium hydroxide	q.s.
Sodium sulfite	q.s.
Dye base, to make	100.0%

FORMULA NO. 4—MEDIUM RED

p-Phenylenediamine	1.30%
p-Aminophenol	0.60
4-Amino-2-nitrophenol	1.70
4-Nitro-o-phenylenediamine	0.30
2-Nitro-p-phenylenediamine	2.00
Pyrogallol	2.40
Resorcinol	0.40
Ammonium hydroxide	q.s.
Sodium sulfite	q.s.
Dye base, to make	100.0%



American Cyanamid's new Agricultural Center in Princeton, N. J.

THE PHARMACEUTICAL REVOLUTION DOWN ON THE FARM

BY DAVID DACHS

This country's pharmaceutical industry has a fabulous future, not only because of our explosive population growth, but also because of an increase in living standards. Moreover, we are substantially prolonging human life and reducing infant mortality. These social and economic factors are accelerating the research and marketing of new products.

A part of this future will surely be the increasing participation of pharmaceuticals in the animal health and nutrition field. In less than two decades, it already is attracting the attention of the leading American drug houses—indeed the entire industry, from company presidents to men in the laboratory.

Old Farmer Brown once fought a losing battle to protect livestock and chickens from illness with such inadequate remedies as castor oil. Today, his heirs, the science-minded farmers and breeders, are an expanding market for the pharmaceutical firms. To keep their stock healthy, they're buying broad-spectrum antibiotics, hormones, vitamins, iron supplements and enzymes, to the tune of $250,000,000 a year.

What's more, there is the startling prediction by farm experts that, by 1970, the animal livestock pharmaceutical market will be $1 billion.

Here are some striking signs of the pharmaceutical success down on the farm:

The Agricultural Division of American Cyanamid Company has begun construction on a giant 640-acre Agricultural Center in Princeton, New Jersey. Antibiotics, feed supplements and animal health products will be tested here.

Some 10,000 animal health products are now being packaged. These alone add up to a yearly market of $100 million for manufacturers.

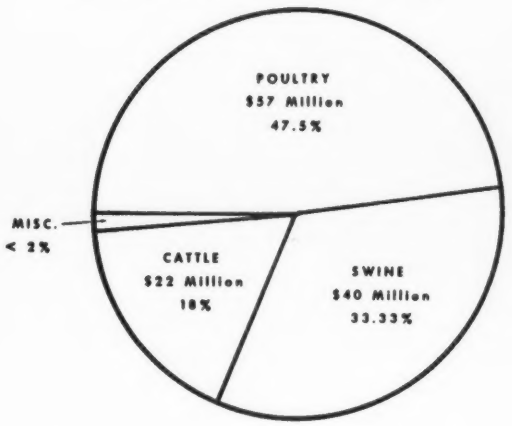
Bulk buying by livestock breeders attempts to bypass the middleman, and save money.

An experimental insurance plan similar to the Blue Cross plan is now being considered by Pfizer, whereby animal producers would buy policies to cover livestock medication bills.

These are just a few of the developments that spotlight a pharmaceutical revolution down on the farm. In its successful wake, however, have come problems: intense competition, price-cutting, the lure of free premiums, and hard-sell radio and television promotions.

The high cost of research for improved animal health products has also buried many profit margins, forcing some small firms to merge with larger ones.

FEED ADDITIVES MARKET BY CLASS OF ANIMAL



Still, there are countless brands competing, and many companies insist that the virtues of a product are not the whole story.

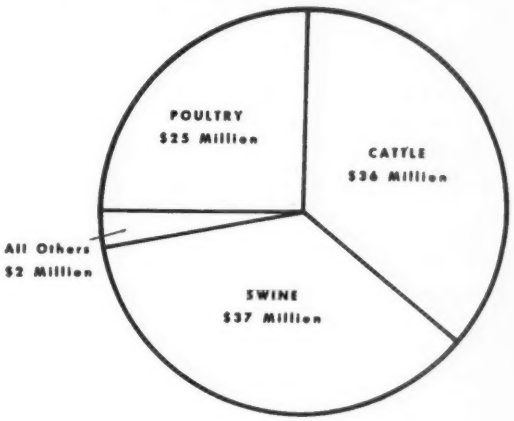
"Services will be the keynote," according to Hugh Dermody, assistant general manager of the Agricultural Marketing Division of Chas. Pfizer & Co. Similarly, T. L. McClintock and R. Prather, who recently surveyed the field for Merck, point out that modern animal producing calls for further stress on research and technical services.

Stress on services—laboratory help and educational materials—show that the battle for acceptance of drugs and nutrients for livestock has been won. A few years ago, an animal breeder often asked, "If I spend $1, $2 or $3 on drugs and enriched feeds, will I get that $1, or $2, or more back?"

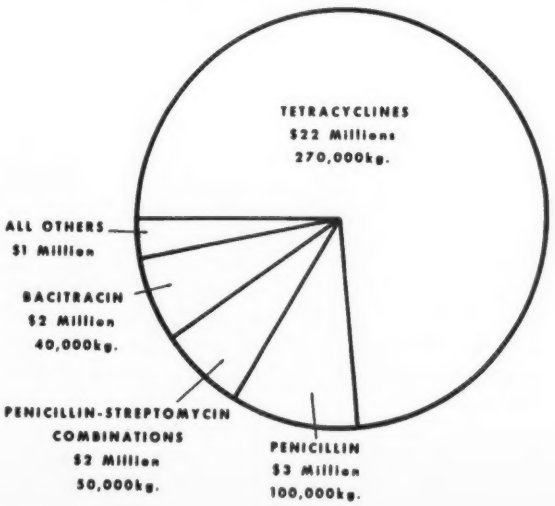
Most, but not all, budget-minded livestock breeders are now convinced that they do. R. Burkhart, manager of animal health products development at American Cyanamid, believes that in the past ten years antibiotics and feed supplements have revolutionized the feed industry by facilitating greatly increased production of animals.

Today, animal breeders buy an arsenal of medications, growth stimulators, disease arresters and adjuncts that will (1) breed leaner, less fatty cattle and hogs for calorie-conscious customers; (2) speed up the life cycle of poultry and birds; and (3) ward off the micro-organisms, mastitis and pulmonary illness that can bankrupt a stock raiser in one fell swoop.

ANIMAL HEALTH MARKET BY CLASS OF ANIMAL



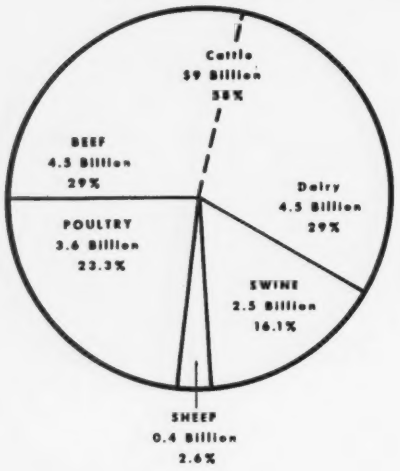
ANTIBIOTICS IN FEEDS BY TYPE



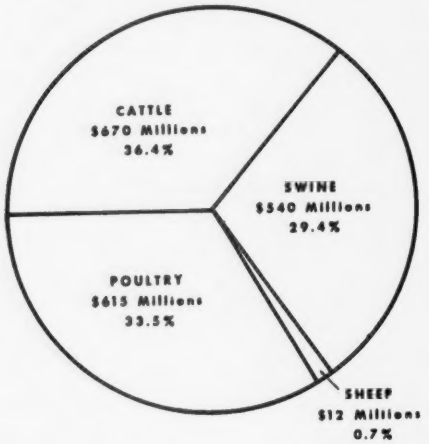
A growing sub-division of the pharmaceutical industry, livestock health aids are now selling like cotton candy at a county fair. United States drug firms, for example, sell some 200 trillion units of vitamin A worth $20 million to be mixed with feeds. This is reportedly three times the quantity used by citizens of the country. Popular sellers, too, are the B-complex vitamins, and D, E and K.

All in all, today's feed-additive business is booming, a good indication that livestock producing has come a long way in a short time. The market divides along these lines: poultry breeders spend about $57 million annually; hog raisers, $40 million; cattle breeders, $22 million for enriched feeds; and miscellaneous breeders account for approximately half a

GROSS ANNUAL SALES OF ANIMAL INDUSTRY
Value of Meat, Milk, Eggs, and Wool at Growers Level
U. S. Total: $15.5 Billion



ESTIMATED LOSSES DUE TO LIVESTOCK DISEASE
U. S. Total: $1.836 Billion (USDA Estimate)



million dollars in sales. The total of $120 million is no drop in the bucket.

What antibiotics sell best? The Merck survey reveals that disease prevention, rather than medication after illness, has caught on, with these sales results: approximately $22 million worth of tetracyclines is bought by farmers annually; $3 million worth of penicillin; $2 million worth of penicillin and streptomycin combinations; and $2 million is spent for other disease inhibitors.

Some see in the widespread use of feed additives and antibiotics the beginning of what they call the "Agro-Dynamic Age." (Incidentally, the U.S.S.R., Czeckoslovakia, and other leftist countries are great users, too.) To put it another way, cost control and automation have entered the stock-breeding industry, especially in the past five years. Today, stock raising and poultry breeding are big business, and anything that can help in producing healthier animals at less cost is bound to be appreciated by producers.

The larger breeders—operations covering 1,500 to 2,000 acres—are buying tons of micro-ingredients each month. They are a growing market for livestock aids, for they are becoming the kingpins of the animal-production industry. The so-called family stock raisers, that is, farms of between 230 and 250 acres like those in Iowa, Illinois and Nebraska, are still functioning, and buy a lot of goods and pharmaceuticals. But the larger, more efficient mechanized operations may soon dominate the business.

Consequently, the identity of the pharmaceutical buyers is changing, as are the serving and promotional angles. In the Fifties, the accent was on retail sales—merchandising displays, shelf fronts and the like. That concentration is changing. By and large, pharmaceutical firms are now concentrating on the large breeders. Pfizer, for example, is re-evaluating its marketing strategy, to use the time of its salesmen more judiciously. Today, the focus of the firm's selling thrust is on the supermarket type of feed and drug dealers and on the large growers, instead of the smaller feed stores. This does not mean neglect of small retailers but, rather, an adaptation to the change in modern livestock operations.

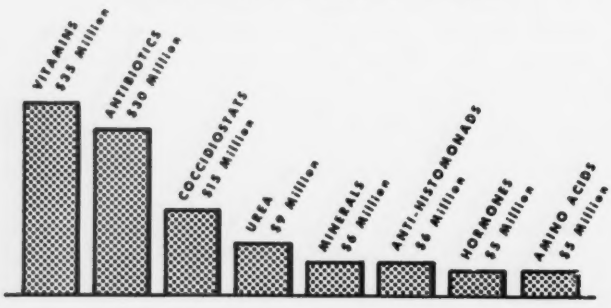
That large growers and breeders, notably in California and on the East Coast, are pressing drug firms to sell feed additives and antibiotics directly to them, reflects this change. They want to cut out the middleman, which puts pharmaceutical companies in an awkward position. According to one pharmaceutical executive, "We have dealers who have been loyal to us for years. But if we don't sell to these large stock raisers, they'll buy directly—from somebody else."

The new cooperative-like cattle-feeding "lots" are actually large, specialized corporate enterprises. They prepare their own mixes with their own automatic mixing machines. And, since they buy tons of nutrients, vitamins, trace minerals, hormones and medicinals, they can and do exert enormous economic pressure.

Although the drug firms are not responsible for the new shape of the farm landscape from family-

(*Continued on page 859*)

PRINCIPAL PRODUCTS INCLUDED IN ANIMAL FEEDS



Packaging and Selling

Fashionette Petite, a refillable
purse-size hair spray by Aerosol Corporation of the South. To replenish, simply place it on top of the 14-ounce Fashionette, press the two exposed valves firmly together for the count of three, and remove. The larger size, with aerosol button attached, can also be used for spraying. The Petite, three inches tall, has a shimmering lavender and gold container.

"Knox furnishes us clear, quality bottles," says plant manager of largest aspirin manufacturer

"Our glass bottle suppliers have to be able to meet our exacting specifications as to size, quality and color. Although breakage isn't much of a factor, we watch that closely, too," says the General Plant Manager of the world's largest producer of aspirin tablets.*

"Knox Glass has been an important supplier of bottles for us since November, 1954. We know we can count on getting the clear, absolutely colorless glass we must have when we buy from them.

"Because of increased market demand, our business is continually expanding. This underscores to us the important role that our several able glass suppliers play in our expansion.

"We are, frankly, pleased to do business with Knox. They have always been very cooperative and helpful in our dealings with them. Knox has, for example, offered the services of its engineering facilities, and while we rarely require outside assistance of this nature, it's good to know we can make use of it if we need to."

Find out how Knox Glass can meet your exacting specifications. Contact Knox Glass, Inc., Knox, Penna., or any of 37 sales offices throughout the nation.

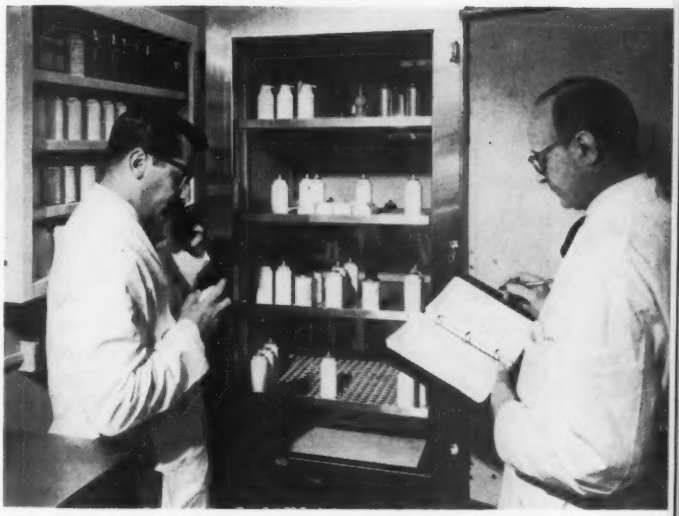
*Name available on request.

the new/**KNOX GLASS**

PRESSURE PACKAGING*

Some Problems in Formulating Aerosol Products

BY VICTOR DIGIACOMO
ADMINISTRATOR OF PERFUME LABORATORIES, GIVAUDAN-DELAWANNA, INC.



One of Givaudan's elaborate testing procedures for aerosols is subjection to heat in an oven. Above, perfumers checking an odor for any changes.

Modern marketing techniques, as a result of the data compiled by many researchers and test analysts, have placed the package on a pinnacle that it has never before attained in the history of selling. New concepts in design and color to attract consumer attention seem to have over-shadowed completely the packaging problems that the producer must face before his product is even put into the container of his choice. And yet, these problems do exist, regardless of the type of package involved. One packaging medium may create more difficulties than another, but no matter how minor the problem may appear on the surface, it must be eliminated if one wants a satisfactory end product.

Glass is considered to be one of the easiest packaging mediums to use, but there are problems associated with it. Color must be considered from other than an esthetic point of view, especially if the product could be affected by sunlight. The closure and its component parts may fit the bottle properly, but consider what could happen if there were a problem of compatibility between the product and the closure.

Although polyethylene and other resins are widely used today, they have compounded the problems of the packager. Ingredients that have a plasticizing effect on the container must be avoided and permeation rates have to be very carefully calculated to avoid a formulation with ingredients that permeate at different rates, resulting in definite changes during lengthy shelf life. In addition, the oxidation of a container's contents must be considered.

The introduction of the aerosol container necessitated a complete re-evaluation of packaging requirements and it has added many new problems. The aerosol was made up of many component parts, each of which could and, in the beginning, often did have an effect on the formulation. Of even greater importance was the presence of a propellant which was frequently a part of the formulation and often a source of incompatibility. As this packaging medium grew in importance, new materials such as glass, aluminum, steel and plastic resins were used, in addition to the metals first used, thereby increasing the problems facing the aerosol formulator. Let us begin with the oldest of the pressurized containers, the metal aerosol.

As always happens with a new medium, the first metal aerosols presented a number of complex problems. We can truly say that the future of the aerosol depended on their being solved. For some products whose ingredients reacted with metal, an inner coating was necessary to stop corrosion and other deleterious effects. The lining itself had to be custom-made, not only to fit the needs of the formulation involved, but also to be compatible in all respects with its individual ingredients.

The valve assembly was a very important factor, in view of the fact that it alone contained many different component parts such as the cup gasket, dip tube, and gaskets for the valve. In addition, the valve assembly contained dissimilar metals that could cause electrolysis, resulting in corrosion and inoperative containers. The dip tube, exposed more than any other component to the formulation, was subject to various reactions when it was not compatible with the individual ingredients.

In working with aerosol containers, we have found it necessary to study the proposed package to determine its suitability for a specific end product. We

(*Continued on page 847*)

*Presented at the Symposium on Aerosols held on the occasion of the opening of the Aerosol Research Center of the School of Pharmacy of Rutgers University, November 17, 1960, at Rutgers University.

The bottles in our new 439 line are thoroughly practical as well as attractive . . . ideally suited for use both at home and traveling. They can be supplied plain or with fired-on ceramic labels. Available from stock in 1/2, 1, 2, 4 and 8 ounce sizes.
439
cologne for men
439
deodorant for men
CONTS. 4 FL. OZS.
439
after shave lotion
CONTS. 4 FL. OZS.
CARR-LOWREY GLASS CO.
Designers and manufacturers of fine glass containers
Factory and Main Office: BALTIMORE 3, MD. • New York Office: 415 MADISON AVE. • Chicago Office: 1572 MERCHANDISE MART

Packaging and Selling

According to a rather extensive survey by the magazine *Sales Management*, the cosmetic industry does not do very well in the business gift market, which is participated in by the thousands of business concerns of all sorts who make presents at Christmas to customers and, sometimes, to employees as well.

According to this survey, the amount expended per company ranges from $20 to $200,000. The average price paid for a gift is $5.79 but in some cases for preferred customers, of course, this will run into the hundreds of dollars.

Nobody knows the exact size of this market, and *Sales Management* does not pretend to guess. They simply say that out of the 288,000 companies listed with 100 or more employees, if only 10 per cent spent the same proportional sum as the companies reporting in their investigation, the gift market by industrial purchasers, would exceed $240,000,000.

No cosmetic products appear among the first ten preferred products listed, which are liquor, hams, cheese, select-your-gift categories, radios, television and hi-fi sets, pens and pencils, turkeys, tableware, electric appliances, lighters, cutlery, calendars, and diaries.

At the very end of a voluminous report on gifts, the following brief paragraph appears: "Perfumes: for feminine customers, receptionists and employees, scents and toilet water seem to be well liked."

Anyone familiar with this trade, even in the absence of statistics, will form a firm conclusion that the industry has drastically lost out on the over-all gift market. Now, in one major branch of this gift market, that is, business presents both to customers and to their wives, cosmetic products—notably perfumes and men's toiletries—are hardly noted as "al so-rans."

Just why this industry with all its advertising and promotion of sales efforts, has an inferiority complex about gifts, or why, after the last war when it rode high with the number one preferred gift, it believes itself to be still in the dog house and that nothing can be done about it—these are questions we cannot answer.

We just think it is time for the industry to wake up to this lost market with a start, and go out and do something drastic about it.

A recent article in *The Reader's Digest*, "The Outrageous Cost of Facial Beauty," seemed to arouse not very much interest, practically no indignation, and hardly any coment in the industry.

This was an article more or less out of the era of "100 Million Guinea Pigs," and similar books where, for a period, editors and writers and some book publishers seemed to discover that criticism, slander and tearing things to pieces aroused much more interest and sold many more books than constructive and objective writing.

One of the leading cosmetic companies, however, felt that because of the low mass-market price of their product, they were given a competitive advantage by this highly critical industry-wide article. They jumped into the metropolitan daily newspapers with full-page ads quoting the article and patting themselves on the back.

Whether this was a competitive advantage or not, we do not know. We do not even think that this company needed such a competitive advantage. At any rate, we doubt that by messing up the house they live in themselves, they gained any added affection among the vast bulk of their retail customers who are selling to the public the cosmetics criticized in this Digest article and are featuring them in their store windows and on their store counters.

According to the Food and Drug Administration, this industry voluntarily takes "many times" more actions to keep unfit products off the market than the Government does.

The FDA said that it is acquainted with 107 voluntary destructions of products totaling $2,706,158 in August alone, and observed that this is probably a mere fraction of the total.

As the plastics industry becomes more and more complicated, so do the uses and applications in packaging of this fascinating material.

Johnson Wax has just entered the shoe polish business with a conventional blow-molded polyethylene bottle. This new product requires three different types of plastics for its full package. Linear polyethylene is used for the inner workings of the package, the conventional polyethylene for the container, and polystyrene for the bottle cap. The white liquid shoe polish uses a fourth plastic material, polyurethane foam, for the applicator.

What's happening to cosmetic refill packages? According to a personal survey which was not very extensive but which did cover several primary users, the answer seems to be, practically nothing.

The refill idea for cosmetics and perfumes is not

Designer and manufacturer of actuator: Emson Research, Inc., Bridgeport, Conn. • Molder of cap and case: Watertown Mfg. Co., Watertown, Conn.

Schering Corporation chooses SUPER DYLAN® aerosol "metering" containers

To provide a shatter-proof case for Schering Corporation's Diloderm Foam, the package designer selected SUPER DYLAN high-density polyethylene, a Koppers plastic. When you press the actuator cap on this tough SUPER DYLAN aerosol case, a concealed Emson metered valve* automatically releases the correct amount of dermotologic foam.

SUPER DYLAN is strong, lightweight, non-corrosive, and chemically inert. It has low permeability, and good heat and dimensional stability. SUPER DYLAN also has a smooth, glossy finish . . . it makes a better-looking package and *it keeps costs down.*

SUPER DYLAN can also give your product a better package at lower cost. Write for more information on SUPER DYLAN and its applications. Koppers Company, Inc., Plastics Division, Dept. DCI 120, Pittsburgh 19, Pennsylvania. Koppers also makes these other fine plastics for packaging: DYLENE® polystyrene, DYLAN® polyethylene and DYLITE® expandable polystyrene.

**Reg. U. S. Pat. Off. Emson Research, Inc.*

KOPPERS PLASTICS

at all new. It has been experimented with by various people in the trade over many, many years.

The primary reason for the refill lies in the fact that many cosmetic products, particularly those which are large participants in the gift market, have an obviously expensive package. There has always been a sort of guilt feeling on the part of many manufacturers who have felt that this expensive package is necessary, but who also know that it has a certain psychological effect on the thinking of many consumers. It does seem a painful waste to throw away a beautiful compact case, a beautiful lipstick container, or a beautiful perfume bottle when a product is used up, and then go out and buy a brand new package in order to get that product again.

The fact is that many manufacturers have felt that this disinclination on the part of many consumers to throw a beautiful package into the waste basket, even though empty, means a repeat sale is substantially delayed, or lost altogether.

Cosmetic history has many examples of manufacturers who have tried to overcome this feeling about the package by appealing to women on the basis of economy or practicality in packaging.

Many years ago, in fact around the beginning of World War II, George Schultz of Shulton purchased a perfume company called Leigh. It was then in a rather sad condition, but it had been one of the famous names in American cosmetics and perfumes. Mr. Schultz had a definite plan: He was certain that the time was ripe to go to the American woman with a fine perfume created in America, in a plain utility package, which would enable him to give the American public the finest quality perfume at a modest price. Our recollection is that the three odors he brought out were offered at $3.50 an ounce. The bottle used was a plain, stock American bottle.

Several hundred thousand dollars were spent for advertising to introduce this new perfume idea to the American public. Unfortunately, the whole idea fell flat and was discontinued after one year of advertising and selling.

At that time the trade generally thought that Mr. Schultz had guessed wrong on the American market and on the buying psychology of American women; that American women were not at all happy with a low price and could not believe that it was a high quality perfume and that they were equally unhappy with the plain package.

Some years later, Joe Stein, who was then president of Lelong, came up with a similiar conviction. He introduced two new Lelong perfumes, Lelong 6 and Lelong 7, in functionally severe, plain bottles at a price which was either $10.00 or $12.00 for two ounces.

These perfumes were introduced at a time when the Lelong name carried a great deal of prestige and had a prominent position in fine stores. Mr. Stein's presentation was that, by eliminating all of the costly expense of packaging in perfume, he was enabling a woman to buy the finest French perfumes at a very modest price.

But once again American women failed to respond.

Since then, there have been efforts to introduce the refillable container, that is, the product in the plainest sort of a package for a repeat sale, enabling the user to retain the original beautiful package which filled her with complexes about throwing it away.

A few years ago, the Christian Dior perfume company, which has one of the most exquisite bottles in perfumery for the Miss Dior odor, decided that this was a definite factor in lost repeat sales.

It is a fact that this Grecian vase-shaped bottle made in France is an extremely expensive package. It is one that most women could hardly bear to throw away. It makes a beautiful permanent ornament on any woman's dresser.

To overcome these complexes over the original bottle, the Dior company brought out a refill in a plain package. This refill was received with some modest enthusiasm by the retail trade because they did get the full mark-up on the perfume but, so far as we know, Dior customers did not respond to it in any particular way.

The most recent experiment with the refill—and the place where it seems to us completely logical all the way down the line from the manufacturer to the retailer to the customer—is in the new aerosol refills, particularly for the full-size cologne bottle and for the purse flacon.

In these new perfume aerosol packages a number of perfume manufacturers have created very beautiful containers. These are now appearing in various forms in anodized aluminum or brass, in various shades of gold, silver, black, etc. The package, as most everyone knows, is a bottle containing the fragrance, and the aerosol and valve and the outer metal shell, which gives it beautiful form and color.

The aerosol fragrance is often a short-lived product. Consumer experience seems to show that a fragrance in an aerosol is used much more frequently and more lavishly and, therefore, the same amount of cologne in an aerosol will be used up quite a bit sooner than the same amount of cologne in a glass bottle. Consequently, this problem of throwing away a beautiful container is not only recurring more frequently, but, with the millions of aerosol colognes sold, it becomes also a far broader problem.

Several perfume manufacturers have brought out an aerosol refill, that is, the glass container with the valve, which readily slips into the outer beautiful metal shell of either the purse container or the larger sizes. These refills are easy to handle, they are economical in that they eliminate part of the package cost, and they seem both theoretically and practically to be highly advantageous for the consumer.

And yet, as we said, preliminary investigation shows that retailing and consumer response is prac-

HOW MUCH DOES A CONSUMER COMPLAINT COST?

A LITTLE CARE IN THE CHOICE OF YOUR SUPPLIER WILL GO FAR IN CUTTING COMPLAINTS AND REJECTS.

That's why Precision Valve Corporation takes a lot of care in processing their valves . . . quality controls at every step of the way reduce the chances of rejects to a minimum, and continuing research reduces the minimum.

Take care... take Precision Valves for your aerosol products.

PRECISION VALVE CORPORATION
700 Nepperhan Avenue, Yonkers, N.Y.

tically negligible.

The big question in these refillables seems to be this: Are they really as practical, useful, economical and worth-while as preliminary thinking indicates, or is there something fundamental, either with respect to practicality or psychologically, which turns a woman customer against this easy and economical way of continuing to enjoy her preferred fragrance?

Probably, and this is just conjecture, the answer is that there is a big job waiting to be done by perfume and cosmetic manufacturers in education at the retail level with store management, and most especially with salesgirls in cosmetic departments, and also in breaking the habit of thought on the part of women, to teach them to appreciate and enjoy the refill.

There seem to be very good reasons to believe that if the refill idea once caught on, it would add substantially to the total consumption of any given product.

Coming events in drug distribution—evolution or revolution! It may be that we are going to get a little of each, according to a recent talk by Herman Leitzow, vice-president of marketing of the Schering Corp. at the N.A.C.D.S. Pharmacy Conference. Here are some quotes:

"We have looked at ethical drug distribution in other countries. Take Europe for example, where in France, Germany, Italy and other countries, the physicians write prescriptions for the exact package size. In France, for example, every doctor has a book listing all products on the market in the exact package size available. The prescription is then filled by the pharmacist in the original, sealed container as it comes directly to him from the manufacturer. Our international friends in the manufacturing field point out that this not only results in lowered distribution costs but that it also virtually eliminates substitution or counerfeiting. While our own packaging costs continue to mount, it seems to me that we can hardly ignore this practice in view of its widespread use, not only in Europe, but in many other countries around the world. . . ."

"The other day I noticed a sign in a New York department store pharmacy, which encouraged repeat business by announcing special discounts on refill prescriptions and special price breaks on large quantity prescriptions. This practice is spreading and it has even been suggested that manufacturers should change their pricing policies to conform to this pattern, thus enabling consumers to get a better break on refill drugs which are used in chronic diseases."

It has been some time since any Hollywood star has decided the cosmetic or perfume business is a pushover and that an occasional few minutes could be given to making a few million dollars in this industry.

A new one, however, has just announced a cosmetic program. This is the Dorothy Lamour Beauty Salon, the first of a planned chain, which opened in Greenwich Village, N. Y. The chain will be owned and operated by Dorothy Lamour, Inc., 65 East 55th Street, and will develop, manufacture, and market a line of popularly priced cosmetics.

Shulton has just announced a massive full-color two-page spread advertising campaign for this Christmas season. It will be supported by heavy radio spots and TV spots.

A reader of the foreign magazines of this industry will very often get an inkling of things to come long before the research-minded people of this industry are aware of intriguing new possibilities for cosmetics.

Thus it was that the great discovery of the therapeutic value of the pollen or orchids was announced in the French magazines almost 12 months before it was offered to the wide-eyed American public.

Now we read that an Italian firm is on the point of introducing on the British market a famous line of Italian creams based on, and we quote, "that most fertile of plants—seaweed." The important products in this line are a series of slimming creams. For instance, there is a reducing cream for the body, an ankle slimming cream, a cream for double chins and, last but not least, a cream that seems to us to reflect the highest form of advanced research abroad—one that, when applied to the roots of eye lashes, does not irritate the eyes or redden the eye lids.

A new biological bug-killer is coming on the market as a joint venture of Pennsalt Chemicals Corp. of Philadelphia and Nutrilite Products, Inc., of Buena Park, Calif.

This product contains bacteria said to impart a fatal, communicable disease to certain moths and butterflies. It has been registered with the U. S. Department of Agriculture and the State of California for use against a number of farm pests.

Hardly any industry has a more glowing future or offers better opportunities for an inventive mind than the pharmaceutical industry.

In this magazine we will soon publish a series of articles exploring the already enormous scope of pharmacy in animal health, the tremendous growing potentialities in plant health, that is, in the economic food crops, and a third market which is now only being scratched, the industrial market.

It is a fact that the pharmaceutical industry ought to claim as its own private preserve any problem or condition anywhere that means combating bacteria, virus or fungus.

Some little work has been done with the industry's products with the birds and the fishes.

Outside of the serious health and economic problems in the domestic food birds, there is a fairly

satisfactory market among such pets as parakeets and canaries. But there is also another problem with birds that for years has harassed cities, many big businesses, public buildings, and our sense of historic decency. Anyone, for instance, strolling about a city street and coming upon a large bronze statue of one of our great national heroes ought to be seriously shocked on discovering the opinion that the local pigeons have for our national hero.

According to *The Wall Street Journal*, quoting an official of the National Pest Control Association, "20 per cent of its, 1,000 member companies now spend at least part of their time chasing birds from customers' properties."

For the many public squares and public buildings, the pigeon and the starling is becoming such a serious pest, not only for filth but as a carrier of diseases, that even the sentimentalists are dwindling in number.

The number of methods used to frighten or discourage these birds reads like an extravaganza in doodads and gimmicks. For instance, one that seems to have a large majority of enthusiastic supporters is to feed gin-soaked bread to the birds on the roof of a building, with the expectation that they will get so woozy as to fall off and break their necks.

The only way in which pharmacy has entered into this fairly substantial social and economic problem is by feeding the birds tranquilizers. The hope here is that the birds will become so tranquil that they can be picked up and carted away but, to date, this industry has not lived up to its reputation in this one particular field.

In commercial fishing, as the number of fish hatcheries increase and the number of artificially maintained ponds and other planned commercial fishing programs grow, this industry will unquestionably find still another market.

In a recent episode at San Pedro, California the products of this industry were used in a valiant effort to save the life of a baby whale.

This poor fish was found slamming its head against the rocks of a breakwater just off shore. After vain attempts to lead the whale back to the deep sea, the 650-pound baby was pulled ashore and loaded with tranquilizers, vitamins, antibiotics and then given antishock therapy—all in vain. According to the curator of mammals at nearby Marineland Oceanarium, the whale was trying to get into shallow water in search of food.

This hardly explains the whale's persistence in hitting its head on a rock until it died. Perhaps this industry could have saved its life if there had been a correct diagnosis. Probably the poor little fish just had a toothache!

The dean emeritus of a university school of journalism recently described the American mass audience as "the most terrifying monster of mid-20th century America."

"What makes this modern 'mass' so frightening," he said, "is that it is so large, at first sight so amorphous, and certainly so hard to examine, to classify, to predict and to manage."

A lot of advertisers, who have discovered you can drop $100,000 or $200,000 in radio, television, or magazines without discovering a ripple of consumer attention, would probably be ready to agree with this statement.

However, a lot of other marketers are discovering that this horrible market is made up of quite a number of easily identified, easily understood class or specialized markets, which are not at all hard to live with.

In 1959 5.6 million electric razors were sold; 4.2 million to men and 1.4 million to women. Industry projection calls for a sale during 1960 of 7.4 million razors.

According to this same source, between 1.6 and 1.7 million first-time shavers will have started shopping for shaving implements during 1960.

Vitamin A plays an important part in the sense of taste. This was shown in experiments conducted at the Long Island Jewish Hospital. Animals deprived of the vitamin were unable to distinguish between regular tap water and ultra-quinine water.

In a recent speech, Herman Leitzow, vice-president for marketing of Schering Corp., stated, "The longer, richer, fuller life that Americans can now look forward to is 'the direct result' of the tremendous advances of the pharmaceutical industry, especially during the last ten years.

"Tranquilizers, steroids, anticoagulants, antibiotics and diuretics have all played an important role in extending and enriching precious life for our senior citizens."

One of the most romantic business stories ever written was the world-wide search for soil samples to produce our present antibiotics.

This story is still going on. Scientists are now penetrating, not only the most remote and difficult parts of the world, but even the ocean floor.

In the studies currently being carried out by the Brooklyn Botanic Garden in a new laboratory, soil samples have been collected from mountain tops, mud from ocean floors, sand from deserts, virgin forests, and from under flowers, scrubs and trees in many different places.

One of the scientists, an experienced skin-diver, collected test materials at the bottom of ocean bays in Puerto Rico, in Death Valley in California, and in the Antarctic, South America and Mexico. Other specimens have come from the Straits of Magellan, the Canadian Rockies, the Andes and the Grand Canyon.

News in Packaging . . .

The Packaging Line of the Future

Leland R. Srigley, director of industrial engineering at Parke, Davis & Company, envisioned what the future packaging line would be like, at the recent Packaging Institute Forum held in New York City. The U-shaped line using two floors, he said, still leaves much to be desired.

In the future, the packaging line will be a continuous automated entity to which all related operations are geared. "The packaging operation would be in the kingpin position . . . all functions such as warehousing, product manufacturing and material supplying, to name a few, would be considered only as they relate to packaging," Mr. Srigley said.

If such a line were incorporated into a completely new plant, the advantages would include warehouses with ceilings high enough to allow for operation at the least cost and highest efficiency; manufacturing space with sufficient headrom for bulk processes; flow of materials directly from the warehouse to the processing areas in manufacturing and packaging with minimum effort and cost; isolation of packaging on the second level to provide maximum cleanliness and quality control; and levels above and below the packaging area providing infeed and discharge of materials under controlled conditions, minimizing handling and isolating the dust-creating conditions of packaging itself.

DuBarry's Dory beauty masque in new foil-based pouch by Continental Can Company's Flexible Packaging Division, which protects the water-sensitive product. Winner of two awards from National Flexible Packaging Assn.

Visual Research Often Faulty

Untold marketing dollars are lost every year through faulty packaging decisions based on visual research that is "library-oriented" rather than consumer-oriented, according to Hugh Schwartz, executive director of the Institute for Design Analysis of San Francisco. In an address before the Southern California Chapter of the American Marketing Association, Mr. Schwartz listed six assumptions that are totally false or dangerously half-true.

1. Results in a controlled situation will also occur in an actual marketing situation. (This is one of the most dangerous.)

2. The package that is seen first has a competitive advantage. (The consumer may pass it by if it gives no further reason for purchase.)

3. Certain colors, or color combinations, have greater consumer appeal than others. (Color tastes and connotations change continually.)

4. Exposing test designs to consumers in their homes is a good basis for generalizing about which designs might sell the product better. (Although such interviews give insights as to which designs might be more pleasant to live with, they do not provide valid answers regarding sales at the point of purchase.)

5. It is reasonable to assume that the parts of the package add up to the whole package. (The individual elements never equal the sum total. They should be analyzed for their contribution to the whole.)

6. A mechanical test of a package's visual effectiveness is reliable. (There is only a test for visibility per se, none for visual effectiveness. No mechanical gadget can reveal whether the over-all appearance will compel the consumer to buy.)

L'Or, Coty's new perfume, in Baccarat crystal flacon, lemon-yellow case of ribbed moire silk that opens vertically on the one-ounce sized bottle, against a white silk panel. The perfume by Vincent Roubert Coty's One size, $60.

First aerosol container of Delrin acetal resin from Du Pont packages Avon's Buttons 'n Bows spray mist. Styled by Avon, injection-molded by Berbardin Bottle Cap Company in pink and rouge red. Metered valve by V.C.A.

Tamperproof, re-sealable container for liquids, powders, tablets, by Kimble Glass Company, the Optiseal Stopper Vial. Plastic knob snaps off and locks in place easily. Of polyethylene, cap by Lumelite Corp., Pawling, N. Y.

New Lanolin Plus Miracle Nail Enamel that aids hardening of nails, preserves oils and moisture, in semi-hourglass bottle in a polyethylene basket to prevent tipping, with striated, elongated cap that adds ease of use.

PHOTOGRAPHY BY DICK BOYER

BERNARDIN closures keep good company!

Leadership rests not alone on product quality, but in surrounding and protecting that quality with accessories (like closures, for example) of precisely similar standards. Such, we like to feel is our case with the proud name of Schenley Distillers Incorporated, which produces V.S.R. 3 Feathers. *May our Closure Craftsmen work with you?*

NEWS and VIEWS

BY TED KLIEN PUBLIC RELATIONS DIRECTOR*

GE and the Strike

It is a matter of history that General Electric was able to win most of their points during the recent, short strike waged against them by a powerful union. It is not within my province to comment on who was right, or who wasn't, but I do feel qualified to review some of the public relations techniques that were used by both sides.

The fact that GE was able to settle so quickly with the union was, I feel, largely the result of a carefully planned program of public information. GE seemed to me to have been the master of public opinion almost from the start. In fact, their effort was so successful that the union soon found that several large groups of their members would not strike.

Before and during the strike, the company used every modern technique of communication to tell their story to the public. Newspapers were given paid ads to bring the GE story to their readers. Radio and television news editors had comments on the union's position by GE within minutes after the union leaders made them.

The use of the news release in a situation like this is always interesting. GE did turn to this accepted method of getting their point of view to the press, but they did not depend on editorial cooperation alone to get into print. The paid ad was used in the major newspapers, repeatedly and with great impact.

There is a lesson in GE's procedure: A public relations staff should know that when you must get a story into print in precisely the words you want, paid advertising is the only way to keep complete control.

Hello Out There

Several years ago, the Armenian-American playwright, poet, novelist and man of letters, William Saroyan, wrote a play which many regard as one of his best, "Hello out There." It is still performed from time to time by amateur theater groups who need a three-character, one-act play.

Throughout the play, a young man in jail calls out to the world, "Hello out there." Usually he gets no answer. The play's theme of man's search for compassion and understanding is arresting; I bring it up now, to introduce my own request for some reaction to this monthly column.

Since August 1958, I've been putting one word after another here to explain my views of various events and people in the drug and cosmetic industry. I think it's about time for me to ask if anyone out there wants to say something—anything at all.

Especially, of course, I would like to hear from you about the general content of this page. Do you want more of the same, or shall we spend more time writing about other things? Is your particular interest served by some of the material herein contained, or do you feel that this stuff is not for you?

If there is anyone out there, I'd like to hear from him.

Pharmacists Quizzed

Recently, pharmacists attending the opening session of the sixty-second annual National Association of Retail Druggists convention in Denver, lined up to participate in the Pharmacists' Professional Service Clinic, sponsored by Lederle Laboratories. The Clinic is designed to enable pharmacists to brush up on their techniques of answering telephone inquiries from physicians about prescription drugs. Sessions similar to those at the Denver meeting have been held annually at NARD conventions for the past five years by Lederle Laboratories.

Lederle's Professional Service Clinic at the recent annual NARD Convention in Colorado.

According to Paul Stessel of Lederle, "The program is dedicated to the strengthening of the professional role of the pharmacist as advisor to physicians on ethical drug products."

At the Denver Clinic, as in years past, adjoining booths simulated the prescription department of a pharmacy and a doctor's office. Participants received and studied product description information, and then answered questions about the products asked by the doctor. The conversations were recorded on tape and judged for accuracy and helpfulness by Denver physicians. The best performance each day of the convention earned for the winning pharmacist a $50 U. S. Savings Bond and a citation for professional merit suitable for display in his pharmacy.

It's an excellent example of how to use a public relations technique of product education to facilitate getting the correct information to your audience.

The End of The Year

Since I don't know who wanders onto this page, it is difficult for me to express my concern for your health and welfare. And so, I address this Christmas greeting simply "To Whom It May Concern."

There is nothing I can give you
which you have not,
But there is much that, while I can
not give, you can take.
No heaven can come to us unless
our hearts
find rest in it today. TAKE
HEAVEN.
No peace lies in the future which is
not
hidden in the present instant,
TAKE PEACE.
The gloom of the world is but a
shadow,
behind it, yet within reach, is joy.
TAKE JOY.
And so, at this Christmastime, I
greet you
with the prayer that for you, now
and
forever, the day breaks and the
shadows
flee away.

Fra Giovanni

*Paul Klemtner & Company, Inc.

. . . aerosol packaging may be more profitable for you

Does your product meet the requirements above? If so, there's a good chance aerosol packaging can revolutionize your sales as it has for manufacturers of hair fixatives, insecticides and many other products.

Aerosol packaging offers customers the neatest, quickest, handiest way ever to apply a product. Result—aerosols are increasing their share of the consumer market every year.

Get the complete story. It's easy to have your product tested by a custom loader—no need for your own loading line. Let Du Pont send you technical data and the names of aerosol loaders. It's one of the many services offered without obligation by Du Pont, manufacturer of time-proved "Freon" propellents for aerosols.

FREE BOOKLET, "Package for Profit", contains information on how you can enter this field without major capital investment . . . includes marketing and technical data. For your copy, write: E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division, 2420N-3412, Wilmington 98, Delaware.

Best-selling aerosols are powered with

FREON®
PROPELLENTS

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

Patent thoughts and trends

BY THOMAS CIFELLI, JR., PATENT ATTORNEY*

Compulsory Licensing of Drug Patents

When the next Congress convenes in January, it is quite likely that one of the problems it will consider is medical aid to the aged. In this connection, it can be expected that the hearings held earlier this year by Senator Kefauver's Subcommittee on the drug industry's pricing and practices will be resumed.

There is no intention here to review the entire scope of the questions taken up by Senator Kefauver's group. The intent here is merely to consider the possible patent consequences of the hearings. It will be recalled that one of the changes suggested by those who were not happy with the present operation of the drug industry was that inventors of medical products should be forced to license any qualified manufacturer who wants to produce and sell the patented product on a reasonable royalty basis.

It is recognized that there are some timid individuals who may disapprove of a discussion of this sort. Such persons probably feel that the best way to meet a problem is to deny it exists and thereby avoid it. However, history shows that this is just not so, and one must also realize that the public is moving more and more in the direction of demanding that something must be done for certain preferred groups, including the aged. Also, it is believed that the impression made by drug industry representatives at the hearings earlier this year was almost in direct relation to the amount of factual knowledge and evidence of preparation disclosed at the hearings. Some, but not all, drug representatives made excellent spokesmen for the drug industry.

Consequently, whether we like it or not, the question of compulsory licensing in the drug field is not likely to be dropped without further consideration. Therefore, some general thoughts engendered by a little reflection and study may be appropriate and, it is hoped, of some value in clarifying the issue.

At the outset, it should be recognized that efforts to inject compulsory licensing in the U. S. patent system are not new. They are practically as old as the system itself. Over the years scores of bills have been introduced in Congress and any number of hearings held thereon. In every single case, with the sole exception of the utilization of atomic energy, Congress has turned thumbs down on these proposals. Incidentally, the proposals were not limited just to the drug industry, but were applicable to all patents.

The arguments given by its proponents for compulsory licensing are that it would prevent the suppression of patents, as well as provide for their availability for use in an equitable manner in any industry where they are a major factor. In other words, the proponents of compulsory licensing rest their entire case on prevention of suppression of patents on a basis that would give the inventor an equitable return by way of a reasonable royalty.

Now, at first blush, the proposal appears reasonable. It takes on added attractiveness, if one makes certain suppositions. For example, suppose that some one has a dominating patent on the whole family of sulfa drugs and suppose that other people improve it by inventing specific forms of sulfa drugs. Suppose, further, that the first inventor who had the dominating patent was absolutely obstinate about not wanting anybody else to operate in that field. In such a case, envisioned, believe it or not, by a recent Commissioner of Patents, there would be a problem of public health and safety so vital that we would have to consider the necessity of compulsory licensing.

The situation could be dramatized further if we consider as Exhibit A all the old people who are living on very meager incomes and whose costs for drugs eat up a substantial part of their incomes.

However, let us take a close look at the situation. If we do, we shall find that the record demonstrates that the charge of suppression of patents and the suppositions of the Commissioner of Patents referred to simply do not represent the workings of the patent system. For example, Thomas A. Edison in testifying before one of the congressional committees considering compulsory licensing, is reported to have said: "I have read and heard numerous statements that many corporations buy valuable inventions to suppress them, but no one cites specific cases. I myself do not know of a single case."

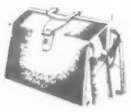
A former officer of the American Telephone and Telegraph Company in another hearing once testified on the same point as follows: "I personally cannot think of an instance in my career of a meritorious patent being suppressed. I have known of the charge but have in every case known that it was unfounded."

Dr. Thomas Midgley, Jr., former president of the American Chemical Society, once issued an invitation in *Industrial and Engineering Chemistry* to all chemists to report cases of suppressed patented inventions that they might know of. Only five alleged instances were reported and not a single case was substantiated after investigation. A number of U. S. commissioners of patents have testified at Congressional hearings to the same effect: that they knew of no instance of a suppressed invention.

Nor is it necessary to cite the record to try to impress the reader with the weakness of the suppression argument used by proponents of compulsory licensing. Let the reader apply his own common sense. What would be the point in suppressing a patent on an invention, in particular a drug invention? Can it be imagined that someone would go to the time, trouble and expense of obtaining a patent on a medicinal and then obstinately re-

*Richards and Cifelli, Newark 2, New Jersey.

here's the essence of persuasive packaging



The Answer Man! Got a question about packaging? Your ***Gardner Sales Representative*** has the answer—resourceful sales-powered Persuasive Packaging.

New Whether Predictor! To buy, or not to buy? ***Gardner Market Research*** finds the answers and the reasons why—to guide the development of your package.

Shape of Things to Come! In ***Gardner Structural Design*** market-oriented ideas achieve form and function. Creativity is shaped by utilitarian and sales factors.

What does an idea look like? Guided by research, ***Gardner Graphic Design*** applies color, type, and imagination to produce a design that changes lookers into buyers.

Nuts and Bolts! ***Gardner Machine Application*** adapts your production machinery to your new packaging program—efficiently and most economically!

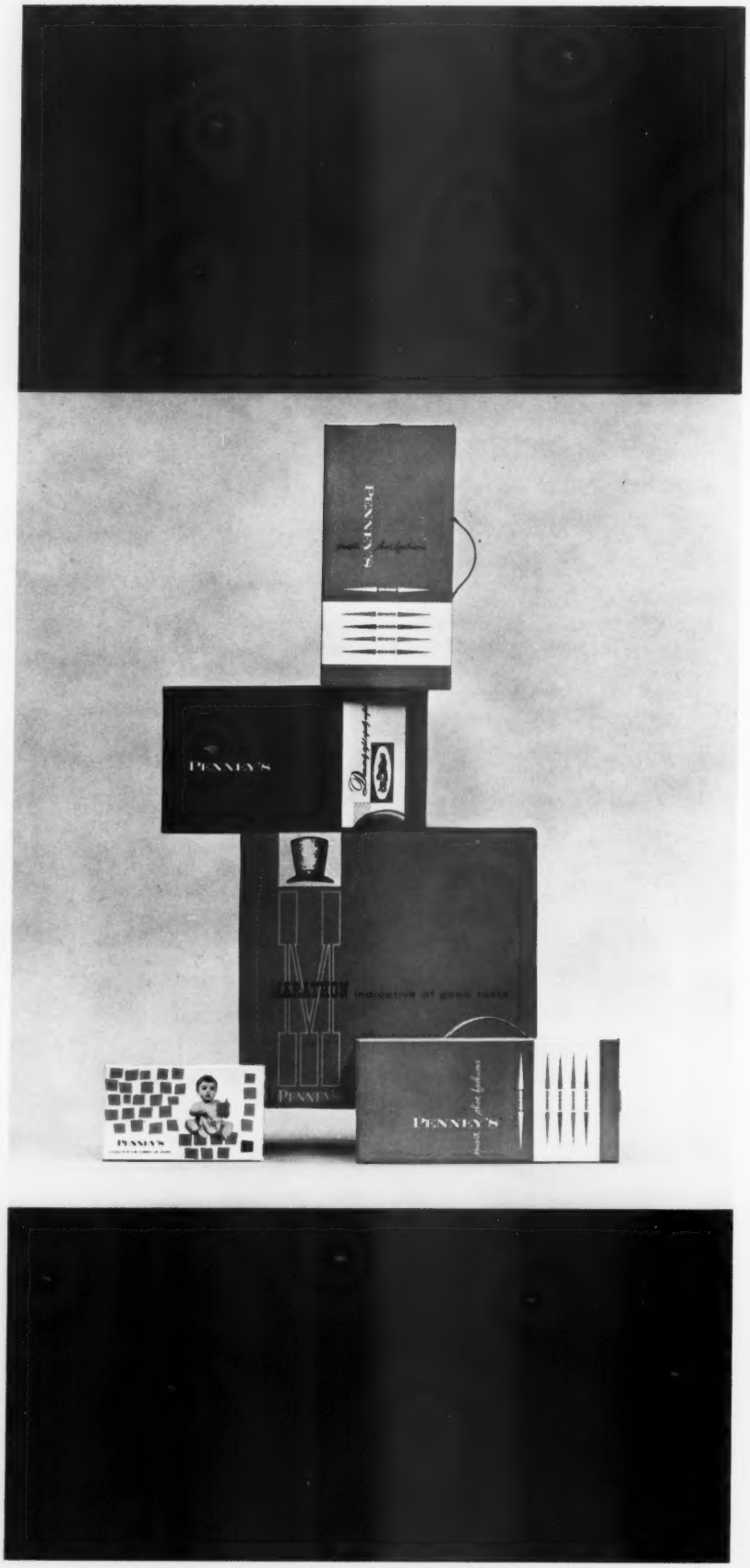
Hypothesis meets the Housewife! Is it really a good idea? Will it sell? If it passes ***Gardner Package Testing,*** you'll see it—if not, back to the drawing board.

HYPOTHESIS MEETS THE HOUSEWIFE! If your new **Persuasive Package** gets the "go" signal here, you've got a best seller on your hands. Up to this point, your new Persuasive Package is just a good packaging idea. Market Research told us what your package should be and do. Structural Design contributed the shape and function. Graphic Design added the flair. The question now is will she buy it? Gardner Package Testing will furnish the answer. ¶ Success here converts hypothesis to handwriting on the wall—an important line on your sales chart, going **up!** If we detect a selling weakness in the design, the package goes back to the drawing boards for an agonizing reappraisal. ¶ Gardner Package Testing can help you set up any controlled market testing situation you might need—from consumer panels to actual market tests. ¶ Isn't Persuasive Packaging the kind of resourceful, completely coordinated approach you want for your packaging program?

DIAMOND NATIONAL
THE GARDNER DIVISION
MIDDLETOWN, OHIO

EXAMPLE OF GARDNER PERSUASIVE PACKAGING

Whenever you see a J. C. Penney store, you'll see Gardner Persuasive Packaging on the job. Chances are, it'll be **Redi-Tote,** the best thing that's happened to shoe boxes, or the new **Redi-Topper** (a hat box, what else?) Both are perfect examples of Gardner's all-round packaging ingenuity. We invented 'em. ¶ Actually, J. C. Penney was the first major retailer to see the merits of, and demand **Redi-Tote.** So recently, when one of our Sales Representatives suggested adapting the **Redi-Tote** principle for packaging other products, we took the idea to Penney. They liked it. **Redi-Topper** is the result. ¶ Penney supplied the appealing graphic design. Gardner **Structural Design** made structural modifications, including an easier opening, better-holding locking top. Gardner Machine Application specialists journeyed to the factories of the firms who supply Penney with men's hats to insure efficient and economical handling of the new **Redi-Topper** on their machines. ¶ Another example of Gardner's creative concept of total packaging service—Persuasive Packaging. Got a new packaging program coming up? We'd like to show you what we can do.



DIAMOND NATIONAL
THE GARDNER DIVISION
MIDDLETOWN, OHIO

fuse to supply the market? It would seem that anyone in his right mind would welcome a large demand for the product and try to satisfy the demand himself. If, however, his financial resources are not sufficient, common sense and history show that licensing of the patent is the next step. Parenthetically, it may be noted that the drug industry makes it a practice to license competitors. Of course, the industry doesn't get any thanks for that, for the same people who say that the inventions are suppressed also look with disfavor upon cross-licensing. In other words, the drug industry, and others, are blamed in certain quarters whether they do or don't do certain things relating to patents.

There is one statistic to which proponents of compulsory licenses point in support of their argument that licenses are suppressed, namely, the large number of patents that go *unused*. However, nonuse of a patent is quite different from suppressing it. Many patents are not used for the simple reason that they are not good enough to create a market at all, or else are not good enough to compete with other things that are available. This point was once brought out by Dr. Frank B. Jewett, a former president of the National Academy of Sciences. Also, inventions involved in many patents are often made obsolete by later inventions long before the patent itself expires. Other reasons for nonuse of a patented invention might include the fact that capital may not be available for its commercialization. Also, many patents are ahead of their time, so to speak, and the public is not ready to benefit therefrom for many years, sometimes until the life of the patent has expired. In such a case the benefactor-inventor gets nothing, not even the thanks of those who profess a desire to help such inventors.

While this article is concerned solely with the effect on the drug industry of compulsory licensing, note should be taken that proponents of compulsory licensing like to point for evidence of suppression to the fact that there is no incentive in a natural monoply such as a utility to put improvement patents into practice, because such patents might render a lot of the equipment of the patentee obsolete. Of course, the argument appears to be self-defeating because, if we assume a natural monopoly, there is no incentive even to improve—the holder of the natural monopoly does not have any competition. However, there is a better argument against suppression by natural monopolies. One need only to point to the Bell System, which through the years has probably held more patents than any other single enterprise other than the U. S. Government itself, incidentally. Although the Bell System has held thousands and thousands of patents, it has never in approximately 50 years brought a suit for infringement for any of its patents in the telephone and telegraph field, to the knowledge of the writer. Now what does this mean? It must mean that the Bell System never assumed a dog-in-the-manger attitude toward its patents and has licensed them to those who were interested. As a matter of fact, it is understood that this has actually been the situation.

Now let us look at the other side of the coin. Let us see whether there are any arguments *against* compulsory licensing. For one thing, opponents of compulsory licensing argue that to force an inventor to give up his exclusive right before he has had an opportunity to reap proper reward would mean that the full incentive that the patent system is intended to give would be largely removed. Furthermore, if the patent holder is forced to license all who may apply, is it reasonable to suppose that companies will risk sufficient time, money and effort to develop a speculative invention to its full potentialities? The public would then be the chief sufferer by being deprived of the benefits of many new products and processes.

Also, consider the effect of compulsory licensing on the character of research. Would inventors be able to make immediate disclosures or would there be a tendency for inventors to keep their inventions secret? In this connection, it should not be forgotten that one of the reasons why large sums of money are invested in drug research and why the results of that research are made available quickly by way of publication is the reliance of the sponsors of the research on the protection afforded by the patent system in this country.

An often overlooked consequence of compulsory licensing would be its effect in restricting the freedom of scientists. This is really an offshoot of the secrecy consequence already mentioned. Specifically, we are talking about what is often referred to as the freedom scientists now have to attend conventions with their fellow scientists and discuss quite freely their common problems. We would, therefore, seemingly lock the chemists up in their laboratories. As the late Boss Kettering, the great inventive genius and personality, once said: "When you lock your laboratory you lock more out than you keep in."

Another objection to compulsory licensing is that it will hurt most the very people whom its proponents profess the desire to help, namely, small business. Under compulsory licensing, such businesses could probably not become established or, if already established, could not continue to prosper without the protection afforded by the exclusive right granted by their patents. That this is so has been brought out overwhelmingly in hearings before Congressional Committees. Large corporations, on the other hand, would be given an additional weapon to use in acquiring the inventions of independent inventors and small business men. It is questionable whether an ingenious inventor could build a business on his patents, as so many thousands of small businessmen have.

There appears to be yet another objection to compulsory licensing, one which seems to have gone almost unnoticed. That is the grave public danger invloved in opening up drug patents to all, including those who are merely interested in gain. Can such people be expected to adhere to the high standards, quality and testing that characterizes the drug industry these days?

If, at this point, one fails to appreciate the connection between the plight of those unfortunates who find it difficult to pay for drugs and the compulsory licensing of patents, the answer is really quite simple: There really is no relationship. The relationship exists merely in the fact that the forces which have through the years attempted to inflict com-

(*Continued on page 836*)

What is Sylvenol®?

a forest-fresh fragrance... an extraordinary fixative!

This unique aromatic is reminiscent of sandalwood, cedar, patchouli and vetivert.

Because of its unusual stability and potency, Sylvenol is indispensable where utmost fixation is required. One of the least expensive fixatives, it may be used in low concentrations to enrich and deepen fine perfumes, toilet waters, and colognes.

Sylvenol is unaffected by weak acids or alkalis. It may be used in a variety of perfumes such as lavender fougere, chypre and woody types.

Write for samples of Sylvenol (or of Sylviola®, which offers many of the properties of Sylvenol at a lower cost).

PENICK

Aromatics and Flavors Department

S. B. PENICK & COMPANY • 100 CHURCH ST., NEW YORK 8 • 735 W. DIVISION ST., CHICAGO 10

LOS ANGELES

From left to right: Louis Amic, now president and chief executive officer of Roure-Bertrand Fils et Justin Dupont of France; Harold E. Thayer, president, Mallinckrodt Chemical Works; Frank T. Jacobs, president

and general manager of Jensen-Salsbery Laboratories, Inc., veterinary drug subsidiary of The Wm. S. Merrell Company; and Raymond D. Hetterick, appointed president of Lakeside Laboratories, Inc. of Milwaukee.

NEWS...

Appointments and Promotions

Louis Amic has been elected president and chief executive officer of **Roure-Bertrand Fils et Justin Dupont** of France. Mr. Amic is well known here from his many trips in his former capacity as managing director of the French firm.

Harold E. Thayer has been appointed president of **Mallinckrodt Chemical Works,** succeeding Joseph Fistere, who retired in November as president, but will continue as a member of the board and of the executive committee. Mr. Thayer joined the company in 1939 as a member of the sales department. After serving in a variety of positions, he was appointed a vice-president in 1950. In 1951 he took charge of organizing a product development department, returning in 1954 to the Uranium Division, where he had served earlier as product manager, in order to construct a new uranium facility under the commission of the Atomic Energy Commission. Mr. Thayer was elected a director in 1956, and in 1959 he was appointed executive vice-president. Two other vice-president have been elected: Dr. Charles D. Harrington and Frederick M. Belmore. Dr. Harrington is general manager of the Nuclear Division; Mr. Belmore is general manager of the Industrial Chemicals Division.

Frank T. Jacobs, former vice-president of **The Wm. S. Merrell Company, subsidiary of Richardson-Merrell, Inc.** (formerly Vick Chemical Company), has become president and general manager of **Jensen-Salsbery Laboratories, Inc.,** veterinary drug subsidiary of the company. Mr. Jacobs, who joined Merrell in 1934, has served most recently as vice-president in charge of new business development. Dr. Vladimir Dvorkovitz, former president of Jensen has been made a special assistant to H. R. Marschalk, executive vice-president of Richardson-Merrell, and will concentrate on product acquisition in veterinary drugs.

Lakeside Laboratories, Inc., has a new president, Raymond D. Hetterick, who has been for five years vice-president for marketing and premarketing of Baxter Laboratories, Inc., wholly owned subsidiary of Colgate-Palmolive Company. He succeeds Herbert P. Nack, who served during the transition period, while continuing as vice-president and general manager of the Colgate Pharmaceutical Division of Colgate-Palmolive. Mr. Hetterick had been executive vice-president of the Harrower Laboratory, Inc., and a vice-president and director of the company.

Ray H. Mulford has been elected an executive vice-president of **Owens-Illinois Glass Company.** He will continue as president of the company's Glass Container Division, with responsibility for the Glass Container Division-East, the Pacific Coast Division, and the Closure and Plastics Division. Mr. Mulford has held several executive positions since he joined the firm in 1933 as budget supervisor at the Clarion, Penna., plant. He was president of Kimble Glass, a subsidiary, when he was named to the new post.

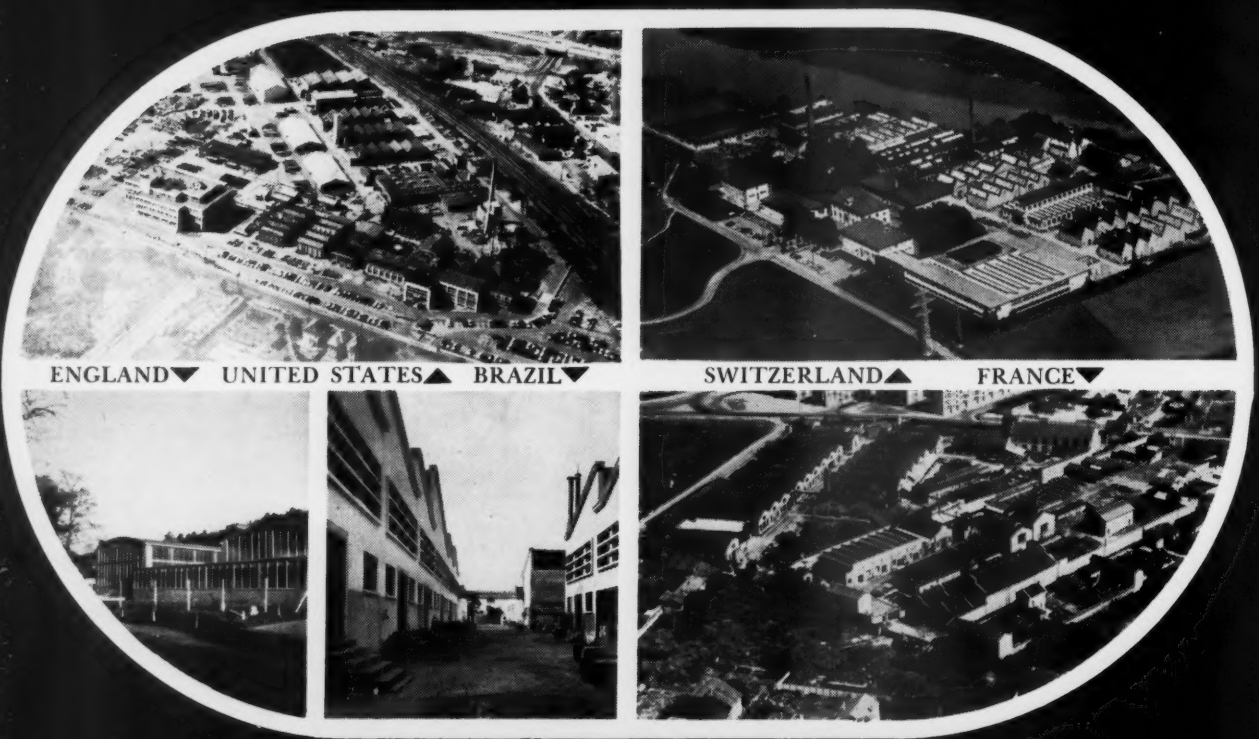
William J. Greer, production director of the Eli Lilly and Company affiliate in Brazil, has been appointed general manager of the new affiliate Lilly is now establishing in Venezuela, **Eli Lilly y Compania de Venezuela, S.A.** It will be located in Maracay, about 70 miles from Caracas, and will manufacture a wide variety of products in the liquid, ampoule, tablet, and filled capsule lines, for distribution in Venezuela. Robert F. Arrom, district manager in Caracas, has been named director of sales and administration. Richard E. Todderud is now director of plant operations for **Eli Lilly Italia, S.p.A.** Formerly manager of facilities planning for Lilly International, he will first assist in the construction and operation of a new plant, then supervise production and office operations and secure Italian personnel. Two other Lilly appointments here in the U. S. are Maurice F. McCameron, from manager of the Calumet District to a special staff associate in the public relations division, and Everet F. Smith, who has been named manager of the newly created chemical patents department.

New vice-president and general manager of **Heyden Newport International Division** is Michael J. Gluck, who has had extensive experience in international operations as director of overseas operations for the corporation's Nuodex Products Division since 1956.

Jack Sahlman, who joined the company in 1950, has been elected vice-president of manufacturing of **Purepac, Inc.** Since 1957, Mr. Sahlman has been plant manager of the Elizabeth, N. J., manufacturing operations.

The **American Pharmaceutical Company** has appointed Du Pont Murphey as vice-president and director. He had been sales manager of Ortho Pharmaceutical Corp.

GIVAUDAN'S OVERSEAS PLANTS ARE READY TO SERVE YOUR FOREIGN OPERATIONS...

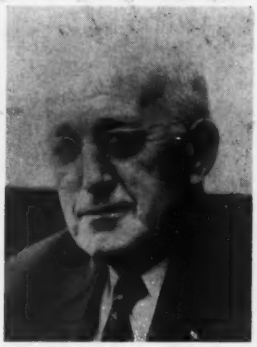


ENGLAND▼ UNITED STATES▲ BRAZIL▼ SWITZERLAND▲ FRANCE▼

. . because Givaudan is a wholly integrated international organization with manufacturing, creative and compounding facilities in full operation in several of the world's major perfume and cosmetic marketing areas.

No matter where your foreign plants are located, you are always assured of the same high standards of Givaudan quality and service, backed by careful coordination at every technical level . . . production, quality control, technical service and new product development.

GIVAUDAN-DELAWANNA, INC.
321 West 44th Street New York 36, N. Y.



Left to right: Jeff Miller Smith, general sales manager, Leavitt E. Griswold, manager of sales administration, and Herbert A. Strate, management chief of Strong Cobb Arner Inc.; and Wilbur E. Dewell, who has been elected chairman of the board of directors of Lanolin Plus, Inc.

Strong Cobb Arner Inc. has announced three changes. Jeff Miller Smith, an assistant vice-president of the company, has been appointed general sales manager. He formerly served as Eastern regional sales manager, prior to which he had been assistant vice-president of The Arner Company until its merger with Strong, Cobb & Company, Inc., in 1959. Leavitt E. Griswold, previously an account executive in the Eastern division, is now manager of sales administration, reporting directly to Mr. Smith. Herbert A. Strate, vice-president, has assumed new duties as chief of management staff and assistant to the president. Mr. Strate has served as director of sales.

Wilbur E. Dewell, formerly vice-president and director of McKesson & Robbins, Inc., has been elected chairman of the board of **Lanolin Plus, Inc.,** succeeding James P. Selvage, who continues as a director. Mr. Dewell has been a director for the past three years, before which he served with McKesson and Robbins for 35 years. Lanolin Plus has also elected two new directors, Charles Green, and Leo Bertisch.

Crown Cork & Seal Company, Inc., has elected John J. Luviano as vice-president-Machinery Division. Mr. Luviano has been with Crown for eight years.

Three management changes have been announced by **Dumont Incorporated,** contract packagers. Dennis E. Spydell, plant manager, is now vice-president; Kenneth B. Dunning, secretary-treasurer, has been elected a director; and Richard C. Ransom, sales manager, has assumed over-all marketing responsibilities.

John H. Wiles has been named assistant to the president of **Baxter Laboratories, Inc.** Before joining Baxter, Mr. Wiles was an associate with the management consulting firm of Booz, Allen & Hamilton. Bryant L. Cheney, medical service representative, has been promoted to western district manager of Baxter's Flint-Eaton Division.

Bristol-Myers Company has elected Richard L. Gelb a director. He is president of Clairol Incorporated, which was acquired by Bristol-Myers in 1959. Myers Bud Cather has joined the executive staff of the company in the field of marketing. He had been senior vice-president of Grant Advertising Inc.

Four changes have been announced by **Hercules Powder Company.** John M. Eagan has been named assistant director of operations for the Paper Makers Chemical Department. Wilbur E. Becker succeeds Mr. Eagan as plant manager at Savannah, Ga. John J. Flaherty, Jr., succeeds Mr. Becker as plant manager at Franklin, Va., and Thomas E. Powers takes over Mr. Flaherty's position as assistant plant manager at Savannah.

Puritan Aerosol Corporation has appointed Joseph J. Winer to the newly created position of assistant to the president, and assistant treasurer. Formerly comptroller, Mr. Winer is succeeded in that post by Richard H. Daley, who had been treasurer of a Boston engineering firm.

Two new vice-presidents have been elected by **Hooker Chemical Corporation,** Dr. Chris A. Stiegman and Charles C. Hornbostel. Dr. Stiegman is now vice-president, research and development, and Mr. Hornbostel is vice-president, finance. They had been, respectively, director of research and director of finance.

Richard O. Beyland has been appointed division manager for **Armour Pharmaceutical Company.** He began with Armour as a sales representative in 1951.

The Allen B. Wrisley Company has appointed William O. Machamer as field supervisor of the sales force. Mr. Machamer has had extensive sales experience in soaps and cosmetics.

James H. Cupps, with **William H. Rorer, Inc.,** as sales representative since 1955, has been appointed San Francisco district sales manager.

Dr. John A. King has become director of animal science research for the **Agricultural Division of American Cyanamid Company,** replacing Dr. E. L. R. Stokstad, who has been appointed a research fellow in Cyanamid's **Lederle Division.** In the **Surgical Products Division,** three regional salesmen have been added: Thomas G. Bowen, Richard P. Cullen, and Wilbur M. Gause.

George Loeffler, formerly development engineer for G. D. Searle, Inc., has joined **Thomas Engineering Company** as director of engineering. Coincidentally, the company has announced the expansion of its manufacturing and sales facilities.

Benjamin Green has joined the New York sales staff of **W. Braun Co., Inc.,** in the plastic and glass container and closure division. Associated with the field for more than 20 years, Mr. Green has most recently served as merchandise consultant.

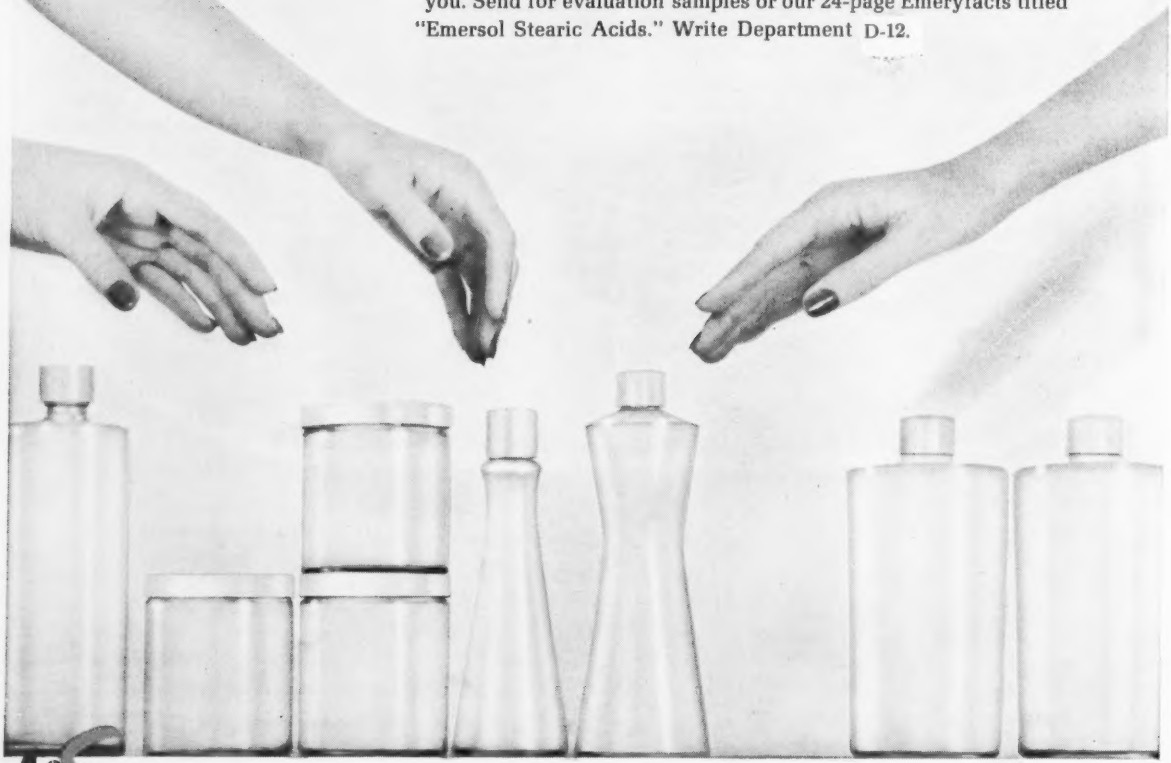
Emersol® Stearic Acid /

your unseen salesman

Nobody sees the stearic acid in your products. Most people don't even know it's there. But Emersol Stearic Acid keeps on selling and reselling your products year after year. Why?

- ☐ Because the uniform purity and composition of Emersol Stearic Acid means that *every* order you ship will have the same high quality and performance as the one before.
- ☐ Because the color stability of Emersol Stearic Acid keeps the color of your product consistently light.
- ☐ Because the high resistance to oxidation of Emersol Stearic Acid protects your product from becoming rancid or yellow on your dealer's shelf and in the consumer's home.

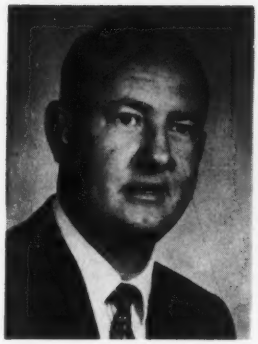
You buy customer confidence for your product when you buy an Emersol Stearic Acid, because the Emery extra margin of quality never lets you down. You buy repeat business because your customers are satisfied . . . time after time. And all this is yours at no extra cost, because Emersol Stearic Acids cost no more than competitive grades. So, put the Emery "unseen salesman" to work for you. Send for evaluation samples or our 24-page Emeryfacts titled "Emersol Stearic Acids." Write Department D-12.



Emery

FATTY ACID SALES DEPT., CAREW TOWER, CINCINNATI 2, OHIO — *a little extra everything except price*

VOPCOLENE DIVISION, LOS ANGELES — EMERY INDUSTRIES (CANADA) LTD., LONDON, ONTARIO — EXPORT DEPARTMENT, CINCINNATI



Left to right: Donald R. Patoka, sales manager of Smith-Dorsey Pharmaceuticals; Thomas M. Glynn, vice-president of manufacturing for John H. Breck, Inc.; Dr. Martin Katz, who has joined Syntex Laboratories, Inc., as director of pharmaceutical development; and Dr. Maynard B. Chenoweth, pharmacologist on the biological research laboratory staff of The Dow Chemical Company, has been named research scientist.

Donald R. Patoka, formerly assistant sales manager, has been named sales manager of **Smith-Dorsey Pharmaceuticals, a division of The Wander Company.** He joined the firm in 1954 as sales representative. Ralph A. Wells, credit manager for Smith-Dorsey since 1929, has been appointed sales service manager. In another division, **Aarbern Pharmacal Company,** Gerald Wojta, formerly with Smith-Dorsey, has been named manager of sales and promotion.

John H. Breck, Inc., has promoted Thomas M. Glynn former manager of the main plant in Springfield, Mass., to vice-president of manufacturing. Mr. Glynn has been with the organization since 1943, during which time he has served in cost accounting, purchasing, production control, and planning and production.

Dr. Martin Katz has joined **Syntex Laboratories, Inc., division of the Syntex Corporation,** as director of pharmaceutical development. Dr. Katz had been with Revlon since 1955, for the last three years as pharmaceutical group leader for Revlon's Thayer Laboratories Division. Prior to that, he was pharmaceutical and development group leader with Chas. Pfizer & Co., and an instructor at Columbia University College of Pharmacy. Also at Syntex Laboratories, Paul O. Bancroft has been named director of advertising. Mr. Bancroft had been product advertising manager for Warner-Chilcott Laboratories.

Dr. Maynard B. Chenoweth, pharmacologist on the biological research laboratory staff of **The Dow Chemical Company,** has been named to the rank of research scientist, the eighth scientific worker to be so named, in recognition for outstanding achievements in science. Dr. Chenoweth is known especially for work on fluoracetate and as an authority on metal binding in biological systems. Also at Dow, Dr. Earl W. Bennett has resigned as chairman of the board of directors. He continues as a director, and as a member of the finance committee. Dr. Carl A. Gerstacker, vice-president and chairman of the finance committee, succeeds Dr. Bennett as chairman. Herbert D. Doan, manager of the chemicals department, has been named executive vice-president, succeeding the late Dr. Mark E. Putnam. Mr. Doan's position as manager of the chemicals department is now filled by John M. Henske, formerly manager of product services for the Midland Division.

The **T. C. Wheaton Company** has announced four changes in its sales organization. Robert J. Shiels, formerly in the Chicago office, is now in Indianapolis. Thomas Leonard, in sales service at the home office in Millville, N. J., succeeds Mr. Shiels in Chicago. Donald Coatney has been named a salesman for St. Paul, and Kennyth Glynn a salesman for Philadelphia.

Three appointments at the research laboratory of **Allied Chemical's General Chemical Division** have been announced. Otto G. Direnga, for the past two years director of planning research, is now director of research administration. Walter G. King, Jr., succeeds Mr. Direnga as director of planning research. He was formerly assistant director, a post now assumed by Charles D. Boyer, Jr., formerly manager of engineering research. Mr. Direnga, with General Chemical for 19 years, began as a research engineer. Mr. King, who has served in several research capacities, has been with the firm for 20 years. Mr. Boyer has been with the division since 1943.

The research laboratories of **Parke, Davis & Company** have announced several appointments: Dr. Ivan C. Nordin has been made associate research chemist; Dr. Bernard Klamer is associate research pharmacologist; Charles B. King is assistant research pharmacist; and there are five new research assistants—Mary L. Fecke, Loretta Mink, Mrs. Rebecca K. Boerman, David Potter, and Mrs. Mary Cleland.

The **Brockway Glass Company** has transferred William T. Graff, Jr., from Tygart Valley representative in New York City to Brockway's New York sales force, and T. G. Braithwaite, Tygart's Chicago representative, is now a member of Brockway's Chicago sales staff. William D. Boorland, has been transferred from the Buffalo sales office to the Chicago office and Charles O. Krouse has moved from the food sales division to the Cincinnati sales office. John Philip Hetreck has joined Brockway as a sales service assistant in the pharmaceutical and proprietary division, and Gladys Graff, formerly with Tygart Valley in New York, is now a member of the Brockway-Tygart Valley New York sales office.

William H. Skelly, Jr., has been named manager of the mid-Atlantic district for the industrial chemicals department of **Commercial Solvents Corporation.** Mr. Skelly joined the company in 1954 as a salesman.

Osmodor Lignyl 200

An interesting new base
of great originality . . .

Woody
Conveys the deep soft
note of rich aged woods.

Spicey
The touch of sharpness
that gives a lift.

Tenacious
The softness that rounds
and holds a fragance.

Use in all types of perfumes,
modern, floral or French types
or in brisk masculine types.

& co., inc.
newburgh, new york

Left to right: Sherwood Dodge, newly elected vice-president and director of marketing, Toilet Articles Division, Colgate-Palmolive Company; Philip A. Boyer,, Jr., M.D., medical director, research and development department, Plough, Inc.; William F. Tiefenwerth, vice-president in charge of marketing, ,Lady Esther Division, Chemway Corporation; and Harold J. Blum, now sales promotion manager for Pharmacraft Laboratories.

Colgate-Palmolive Company has elected Sherwood Dodge vice-president and director of marketing of the **Toilet Articles Division.** Mr. Dodge had been marketing vice-president of Warwick & Legler, Inc.

Philip A. Boyer, Jr., M.D., has joined **Plough, Inc.,** as medical director in the research and development department. Dr. Boyer has had two years of general practice, and 11 years of clinical research and development work in the pharmaceutical industry.

William F. Tiefenwerth, formerly advertising and merchandising director, has been named vice-president in charge of marketing for the **Lady Esther Division of Chemway Corporation.**

Pharmacraft Laboratories has appointed Harold J. Blum sales promotion manager. Mr. Blum was formerly associated with the parent company, Joseph E. Seagram & Sons, Inc., as assistant to the scientific director. Pharmacraft has also appointed Jon Naar director of international marketing. Educated at the Sorbonne, the University of London, and the Russian Institute of Columbia University, Mr. Naar was managing editor for World Wide Medical News Service before joining Seagram.

Reheis Company, Inc., has appointed Dr. Stuart G. Ballin as research chemist and Mrs. Katherin Y. Ku as analytical chemist. Dr. Ballin was formerly with Hughes Aircraft Company; Mrs. Ku is a recent graduate of Upsala College.

Four executive promotions have been announced by **The Purdue Frederick Company.** Murray Altman has been named assistant to the vice-president in charge of sales; Louis Foresta is now sales analyst and office manager of the sales department; James Pope is district supervisor for the southern district, including Louisiana, Florida, and Texas; and William Moos is national field sales manager.

Thomas W. Guinivan, formerly assistant sales manager of White Laboratories, has joined **Roche Laboratories Division of Hoffmann-La Roche, Inc.,** as product sales manager.

Dr. Norris D. Embree has been appointed vice-president in charge of technical operations at **Distillation Products Industries.** Since 1957, Dr. Embree has been technical director of this **Eastman Kodak Company division.** He joined Kodak in 1934 as a member of the research and development group that later became Distillation Products Industries.

New Manager of the organic chemical department of **The Glidden Company's Chemicals Division** is Robert P. T. Young, who had been with Procter & Gamble Company for 19 years.

Dr. Bruce Meade Wimer, formerly an assistant in internal medicine and hematologist with The Guthrie Clinic in Sayre, Penna., and since 1959 engaged in private practice, has joined the clinical research department of **E. R. Squibb & Sons** as assistant medical director.

C. Neel Walker has been named director of general promotions at **Johnson & Johnson.** Mr. Walker joined the firm in 1955 as a sales representative, and has served most recently as product director for Chicopee Mills, Inc., an affiliate.

Newly appointed director of pharmacology in the **Mead Johnson & Company Research Division** is Dr. Wilbur M. Benson, former professor of pharmacology at the University of Minnesota Medical School. He had been chairman of the pharmacology department at Hoffmann-La Roche, Inc.

Poly-Pak Inc. of New York City has appointed Jack Feldman as special representative to cover cosmetics and toiletries featuring the firm's new line of polyethylene containers and closures.

Dr. Alexander R. Surrey and Dr. Sydney Archer, both chemists at the **Sterling-Winthrop Research Institute,** have been appointed assistant directors of chemical research, in recognition of their achievements in medical chemistry. Both received Distinguished Service Awards from the National Defense Research Committee for development of new drugs during World War II. Dr. Surrey joined Winthrop Laboratories which is, along with the Research Institute, a division of Sterling Drug, Inc., in 1941. In 1956 he became section head of a synthetic organic chemistry unit. Dr. Archer began with Winthrop in 1943, and also became a section leader in 1956. The Institute has also made the following appointments: research associates in chemistry—Dr. Helmuth E. M. Jorgensen and Dr. Donald K. Phillips; Dr. John C. Grivas is in the chemical development section of the chemistry division; and three research associates in biology—Dr. Thomas C. Gilfoil, Dr. Francis Pancic, and Dr. Pat B. Hamilton.

Salicylamide is now employed with outstanding results in a wide and growing range of profitable pharmaceutical specialties.

Much work is progressing in development laboratories on other products that will benefit by the unique advantages of this versatile salicylate. Because of its relatively low toxicity, freedom from side-effects and its greater tolerance, salicylamide is of special interest where rapid action and large dosage are required.

Penick Salicylamide is exceptionally pure, white and odor-free and is available in regular, coarse and fine powder or micronized form. To meet the increasing demand we maintain tonnage stocks from coast-to-coast. As basic producers and major suppliers we can assure you of ample, continuing supply.

For samples and a copy of our booklet reviewing salicylamide literature, return the coupon below.

PENICK

NYQ Chemical Division

S. B. PENICK & COMPANY
100 CHURCH ST., NEW YORK 8 • 735 W. DIVISION ST., CHICAGO 10
LOS ANGELES SAN FRANCISCO PORTLAND, ORE.

S. B. PENICK & COMPANY
NYQ Chemical Division
100 Church St., New York 8, N. Y.

Gentlemen: ☐ Please send me your salicylamide literature review.

☐ Send samples of Penick Salicylamide.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

The S. E. Massengill Company has appointed James R. Helms to the newly created position of marketing office manager, to coordinate information, materials, and supplies among the four regional offices and marketing headquarters. Two new district sales managers have also been appointed: Keith Clements in North and South Carolina, and Joseph H. Lindsey in Alabama, Mississippi, and Louisiana. Mr. Clements has represented Massengill for five years, and Mr. Lindsey for seven.

Jack Haligas, formerly with Ball Brothers, Inc., has been named by the **Foster-Forbes Glass Company** as representative in metropolitan Chicago.

Cutter Laboratories has appointed Chad Kelley, Great Lakes division sales representative, as division manager for the company's south central division with offices in New Orleans. For six years prior to his new appointment, Mr. Kelley was a sales representative in the Milwaukee office. He will now direct activities in Arkansas, Louisiana, Mississippi, Alabama, Tennessee, and positions of Kentucky and Florida.

Dudley J. Taw, formerly division sales manager, has become vice-president and sales manager of the independent drugstore sales division for **Revlon, Inc.,** and Lewis C. Davis is now vice-president of the department and specialty store division. Mr. Davis had been president of Bonwit Teller, Philadelphia and, after 1958, senior vice-president of Rayco, Inc.

Hazleton Laboratories, Inc., has appointed Dr. Robert D. Henthorne, D.V.M., as a consultant in laboratory and animal care and disease control. He has been professor of veterinary medicine and director of laboratory animal facilities at Ohio State University.

Union Carbide Chemical Company has announced four new appointments: William C. Friedemann, formerly technical representative in the Houston district, is now in field sales in the Cleveland district. New technical representatives are Peter F. Decker, New York district, Joseph P. Hester, Houston, and William A. Krebs, Newark.

Benjamin F. Bastian, project in the central engineering department of **Armstrong Cork Company,** has been named plant engineer of the firm's glass container plant in Dunkirk, Indiana, succeeding Joseph T. Martin, who has retired.

Parker C. Finn has been named sales representative for the eastern sales district of the silicone products department of the **General Electric Company.** He has been with the company since 1955 on the chemical and metallurgical training program.

Ayert Laboratories has appointed Keith Roberts, formerly district sales manager, northern California, to the executive sales staff. Ed Bacsik, previously a regional sales manager for Hoffmann-La Roche, Inc., is also a member of the executive sales staff. And Hugh Bennett, district manager in Atlanta, is now on the staff of the medical department as supervisor of Clinical Research Associates.

J. H. Day Company Division of The Cleveland Automatic Machine Company has named William F. Grobe direct sales representative out of the Detroit office, serving Michigan, northern Indiana, and Ontario, Canada.

Conrad Hohing, quality control supervisor, has been made manager of the Staten Island plant No. 2 for **Onyx Chemical Corporation.** Mr. Leonard Hodes has been appointed assistant director of technical service. He had been research chemist in the Rahway plant.

John K. Quinn, formerly sales assistant manager for Risdon Manufacturing Company, has been named sales manager of **Oil Equipment Laboratories, Inc.,** for New England and New York State.

Wyman L. Taylor has been appointed eastern sales manager, **Industrial Chemicals Division, Stauffer Chemical Company.** He had been administrative assistant to the vice-president of sales.

Roscoe C. Clark Retires

Roscoe C. Clark, who has been associated with Eli Lilly and Company's public relations and merchandising divisions for almost 37 years, has retired from his position as special staff associate specializing in civic and community aspects of the company's program. Mr. Clark was first editor of Lilly's employee magazine, the Lilly Review.

Mallinckrodt President Retires

Joseph Fistere has retired as president of Mallinckrodt Chemical Works, having reached the statutory age under the company's retirement program. He will continue to serve as a member of the board and the executive committee.

JOSEPH FISTERE

Mr. Fistere joined Mallinckrodt in 1942, and has been president for 11 years. Before that, he managed the Far Eastern activities of National Aniline and Chemical Company, subsidiary of Allied Chemical Corporation.

N.H.C. Appoints Connor

John T. Connor, president of Merck and Company, has been appointed to the National Health Council's Commission on Health Careers. The commission, which is made up of leaders in business, labor, education, health and civic affairs, guides the health careers program, provides information about careers in health professions of services to high school students.

Zahn Chosen by P.I.

Lawrence H. Zahn, director of purchasing and package development at Ciba Pharmaceutical Products, Inc., was elected president of the Packaging Institute during the Annual National Packaging Forum recently held in New York City.

Cook Made Honorary President

Roy Bird Cook of Charleston, W. Virginia, has been made honorary president of the American Institute of the History of Pharmacy. Mr. Cook's special field is the Civil War period.

He has also written *Annals of Pharmacy in West Virginia,* as well as works on Stonewall Jackson, Fort Lee, and on Washington's western lands.

WHO PUT THAT ETHYL ALCOHOL DRUM THERE?

You put it there, of course. The lady doesn't know it, but the perfume she's applying—like many of the toiletries she uses daily—very likely contains alcohol that bears the U.S.I. label.

You put it there because you know that your reputation is at stake every time a consumer uses a product with your label. And you know, too, that your product's quality is only as good as the raw materials that go into it. So for exacting cosmetic and toiletry formulations, you choose U.S.I. specially denatured or pure ethyl alcohol—the brand hospitals have specified for over half a century.

You put that ethyl alcohol drum there because U.S.I.'s reputation for quality safeguards your own.

Write on your company letterhead for complete information on U.S.I. ethyl alcohol.

U.S.I INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corp.
99 Park Ave., New York 16, N. Y.
Branches in principal cities

Abbott Packaging Director Chosen

George R. Ryan, director of packaging at Abbott Laboratories, has been appointed to the Planning Council of the American Management Association's Packaging Division. Mr. Ryan is one of 22 executives serving voluntarily to provide advice and counsel on the division's meetings.

Pharmacy Congress Program

Four separate panels on community pharmacy, hospital pharmacy, industrial pharmacy, and medical detailing will be held during the third annual Pharmacy Congress sponsored by St. John's University's College of Pharmacy on March 17, 1961.

The four moderators, in the same order, are Dr. Frederick Lascoff, noted pharmacist and president of J. Leon Lascoff and Son, Apothecaries; Norman Baker, apothecary in chief, New York Hospital; Dr. Charles I. Jarowski, director, pharmaceutical research and development, Chas. Pfizer & Co.; and J.

Dragoco Director in New York

Wilhelm Karl, Prinz von Preussen, a director of Dragoco, Inc., recently arrived in New York on a business trip.

Following World War II, he became associated with Dragoco, reorganizing the subsidiary that had been totally destroyed in the German Eastern Zone. Then, in 1955, he collaborated closely with C. W. Gerberding until his retirement in 1960, as assistant managing director.

WILHELM KARL

PDC Elects Dickens

The Package Designers Council elected Robert Sidney Dickens president at its annual dinner meeting in New York. Mr. Dickens, President

ROBERT SIDNEY DICKENS

of Dickens, Inc., Chicago package design firm, has previously served on the board of directors of the Council, and has been secretary-treasurer of the midwest chapter.

Margery Markley and May Bender were re-elected vice-president and secretary, respectively; Saul Nesbitt, treasurer; and Karl Fink, Margery Markley, and Mr. Dickens were re-elected to three-year terms on the board of directors. Mr. Fink has been appointed public relations chairman for the coming year.

Also during the annual meeting, the Council held its second conference on public relations.

Enjoying a joke at the annual fall reception and cocktail party given by Givaudan-Delawanna, Inc. at the University Club in New York left to right: Xavier Givaudan; F. N. Bangs, Givaudan vice-president; G. B. Livesay, Colgate-Palmolive; E. R. Durrer, Givaudan president; H. Gregory Thomas, Chanel; Frazer V. Sinclair, DRUG and COSMETIC INDUSTRY; and Andre Givaudan, here

Members of the executive committee of the Fragrance Foundation and guest speakers, at the luncheon recently held in New York's Hotel Pierre: left to right: Jack Mohr, Revlon; Dorothy Hinshaw, Carson, Piri & Scott; Dennis James, radio and tv star; Judy McGuire, Vassar 1963; Paul Martinot, Caron; and Sydney Friend, I.F.F. Panel discussion was Fragrance Today and Tomorrow.

Mexican Cosmetic Association Chooses New Officers

The Mexican Cosmetic Association, known officially as Association Nacional De La Industria De Perfumeria, A.C., has announced its new officers.

President is Eduardo Meurinne, Establecemientos Emeur, S.A.; vice-president, Eng. Guillermo J. Tervino, Kolmar de Mexico, S.A.; secretary, Federico O. Gerzso, Max Factor & Co.; pro-secretary, Ramon Pando, Industrias Selectas, S.A.; treasurer, Andre Salomon, Ansa, S.A.; pro-treasurer, Francisco Huerta, Cia. Importadora de Perfumeria, S.A.; life member, Agustin S. Cullen, S.A.; advisory member Andre Kuhn, Viler, S.A.; members, Louis Strill, Alberto Kremper, S.A., Harold Judelson, Bourjois, S.A., and Alberto Farres, Esencias y Materias Primas, S.A.; manager, Armando Breton, Jr.; and legal representative, Antonio Rocha, Jr.

LANOLIN

ANHYDROUS USP	X-TRA	DEODORIZED GRADE
ANHYDROUS USP		COSMETIC GRADE
ANHYDROUS USP		PHARMACEUTICAL GRADE
ANHYDROUS USP		INDUSTRIAL GRADE

DERIVATIVES

RITALAN (100% Pure Lanolin Oil). The limpid and oil soluble liquid lanolin fraction — Hypo-Allergenic Penetrant Moisturizer — Plasticizer. Will not depress skin respiration.

RITACHOL (Liquid cholesterol emulsifier) Non-ionic surface active —Hypo-Allergenic Emollient— Moisturizer balanced. Free Cholesterol plus other Sterols.

ETHOXYLATED LANOLIN USP 50% & 100% Active. A water soluble hydrophllic lanolin with surface active properties.

FORLAN "T" A solid base containing active lanolin fractions in base to provide utmost emolliency and emulsion stability.

FORLAN "G" an inexpensive lanolin cholesterol base designed primarily for cream hair oils.

CUSTOM MADE LANOLIN DERIVATIVES. Exclusively designed for specific customer requirements.

Stocks maintained in New York and Chicago.
Write for suggested formulas and samples.

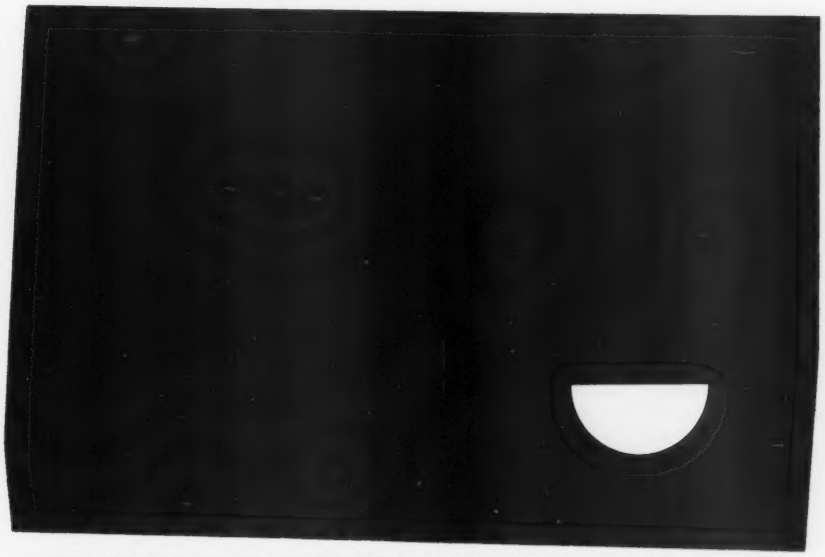
HUMAN PLACENTA LYOPHILISED—

R.I.T.A. CHEMICAL CORP.

612 N. MICHIGAN AVENUE **CHICAGO 11, ILLINOIS**

AGENTS

EAST COAST	GULF STATES	WEST COAST
J. L. SIMONS CO.	L. H. BAILEY INC.	G. L. GAMELCY CO.



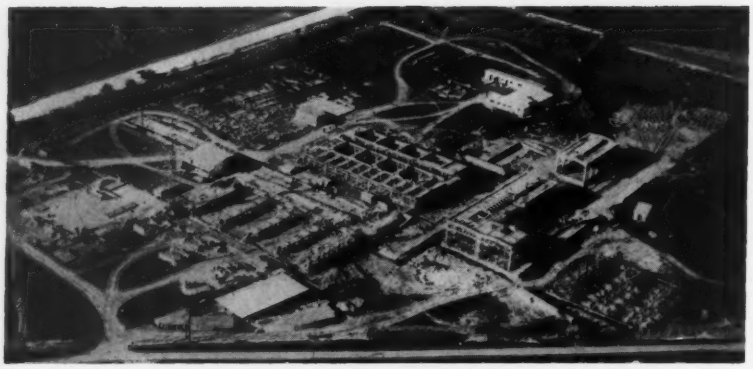
Looking toward tomorrow, visualizing the shapes and courses it will take, anticipating its needs... this search for ways to serve industry better and more fully has been an unremitting spur to Sonneborn, since many tomorrows ago. Inasmuch as this quest dates back to the turn of the century and has been concentrated upon a specialized segment of petroleum refining, it is not surprising that in products, technical assistance, service, Sonneborn Goes Further.

SONNEBORN
CHEMICAL AND REFINING
CORPORATION

White Oil Division, 300 Park Ave. South, New York 10, N.Y.

SPECIALISTS IN WHITE MINERAL OILS • PETROLATUMS

We have changed our name from L. SONNEBORN SONS, INC. to SONNEBORN CHEMICAL AND REFINING CORPORATION



Givaudan Iberica S.A. plant now nearing completion at San Celoni, near Barcelona, Spain.

McLester Award Goes to Beatrice Finkelstein

The seventh annual McLester Award was recently presented to Beatrice Finkelstein, nutritionist in the Physiology Branch of the Aerospace Medicine Division at Wright-Patterson Air Force Base in Ohio. The presentation of the honor, which is sponsored by J. B. Roerig and Company, division of Chas. Pfizer & Co., was made at a dinner of the annual convention of the Association of Military Surgeons at the Mayflower Hotel in Washington, D. C.

The bronze plaque and $500 honorarium go each year for outstanding research in nutrition.

V. A. Scientist Wins Stitt Award

Lewis J. Griffith, Ph.D., chief of reference laboratories for the V. A. cooperative study on hospital infections and antibiotic-resistant staphylococci for the Veterans' Administration Hospital in Batavia, N. Y., received the seventh annual Stitt Award for outstanding achievement in antibiotic research. It was presented by the Association of Military Surgeons at the annual meeting in Washington, D. C.

The award, a $500 honorarium and plaque, was established by Pfizer Laboratories as a memorial to the late Rear Admiral Edwar Rhodes Stitt.

Dr. Griffith received the award for his studies on antibiotic susceptibility testing methods and antibiotic-resistant bacteria.

Walter Spatz in the East

Walter Spatz of Walter Spatz Laboratories of Santa Monica, Calif., recently spent several days in the East visiting Philip J. Heinle, his special eastern representative. Mr.

Glyco Names Western Representative

Glyco Chemicals, a division of Chas. L. Huisking & Co., Inc., has appointed Quad Chemical Corporation, a newly formed company in Los Angeles, as its West Coast representative. Headquartered at 2472 Hunter Street, the company will distribute all Glyco products in California, Oregon, Washington, and Arizona.

Harry M. Fieger, formerly sales manager of new chemical products for L. H. Butcher Company in Los Angeles, is head of Quad; Harlan Bishop, chemist previously with Nutrilite, is v i c e-president; and Stanley Stuteville, former chemical division sales coordinator for H. L. Butcher, is secretary and treasurer.

Dorothy Lamour Beauty Salon Opens

The first in a chain of Dorothy Lamour Beauty Salons opened in Greenwich Village at Ninth St. and Sixth Ave., New York City, early in November. It is owned and operated by Dorothy Lamour, Inc., of New York City, which manufactures a line of popular-priced cosmetics, and is the first in a nation-wide chain

New McKesson Drug Branch

A new wholesale drug branch has been opened at Hartford, Conn., by McKesson & Robbins, Inc The New Haven Drug Division is managed by David J. Breen.

J. H. Healy

J. Howell Healy, former vice-president and sales director of McNeil Laboratories, Inc., died on November 24 in Rochester, New York, at the age of 75.

Before retiring in 1955, Mr. Healy had been associated with McNeil for more than 45 years, having joined the firm in 1909. In 1933, when the company was incorporated under its present name, he was elected vice-president and sales director.

H. R. Tennant

Hugh R. Tennant, manager of Parke, Davis & Company's Seattle branch office for the past 13 years, died suddenly of a heart attack on November 28 at his home in Seattle. He was 57.

Mr. Tennant joined the company in 1934 as a sales representative in Seattle, and in 1947 became manager of the branch.

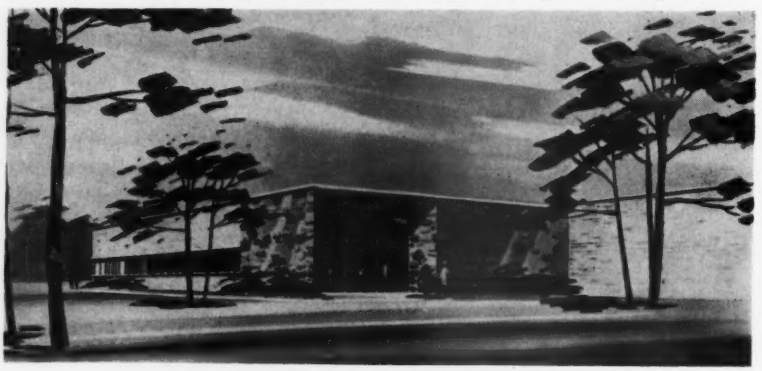
C. C. Orcutt

Charles C. Orcutt, retired president of Carter Products, Inc., died in November at his home in Palm Beach, Florida, after an illness of several months. He was 92 years old.

Mr. Orcutt had been with Carter from 1905 until his retirement in 1940.

Surviving are his widow; a daughter, Mrs. Henry H. Hoyt, wife of the present president of the company; a son; three grandchildren and six great-grandchildren.

Architect's drawing of office facilities of Baxter Laboratories being built in Kingstree, S. C.



Management Forum

BY FRANCIS CHILSON, Sc.D.
PROFESSIONAL ENGINEER

Creativity

Millions of dollars are being spent in this industry on so-called research. Anyone who has had contact with the research programs will admit that a substantial part of the money invested in research is wasted. Some authorities say 10 per cent; some say 50 per cent. I once analyzed a research program at the request of a client who was spending over a million and a half dollars annually without getting any return. I found two things, among many others, that represented a sheer waste of money. One was an antibiotic program. Ten men were involved. None had had any experience in antibiotic research; neither had the research director. Considering the number of chemists engaged in antibiotic research for the last 20 years, the chance of a new discovery by this small inexperienced group was about one in ten million. Another project, involving a larger team, would have involved a process so costly to operate, and the product would have required such expensive raw materials, that there wasn't a hope in hell that the product could have been sold at competitive prices, even if the research program had been successful.

Recently, Dr. H. C. Brown of Purdue University separated research into three phases: basic research, which is the search for understanding—the search for truth for truth's sake only; exploratory research: the search for discovery; and applied research; research directed at a specific objective. Dr. Brown pointed out that all phases of research overlap, and he pointed out that even applied research "can lead to momentous discoveries and basic advancement if properly directed and executed." Dr. Brown takes a dim view of the creativity of industrial research. He points out that in the United States there are 80,000 industrial scientists on whom hundreds of millions of dollars are being spent annually. Dr. Brown said that, while many patents were issued, very few are original, and so-called industrial research is contributing very little to the advancement of science. In this opinion he was supported by Dr. W. S. Johnson, who in 1957 won the A. C. S. award for creative research. He stated that the ratio of man hours to discoveries is very high. He pointed out that most awards go to academic scientists and that of 89 chemistry members of the National Academy of Scientists, only six are from industry.

We are not going to stop the waste of research investment, nor are we going to make our research efforts more creative, unless top management changes its attitude and its management control practices. I'd hazard a guess that 90 per cent of all company presidents in this industry think of research as a marketing tool. The research department, so-called, is a place where new products can be developed and new gimmicks created for the marketing boys. When a company president authorizes the investment of some millions of dollars in a new well-equipped laboratory, he wants products—damned quick! As one of them said to me, "I've given those long-haired bastards a new lab and everything they wanted in it. Now let's see what they'll come up with."

While there are a few very affluent companies who can afford to support basic research in universities, the majority of the firms in the trade, in the present state of our organization, can afford to support applied research only. So, I think both management and research people should stop kidding themselves that they are engaged in basic research. Even the National Cancer Program, which is referred to as a research program, is no more than an empirical screening process, more Edisonian than scientific in character.

Management could contribute a lot to research productivity by stopping its interference with the research director and with the research laboratory.

RESULTS speak LOUD and CLEAR!

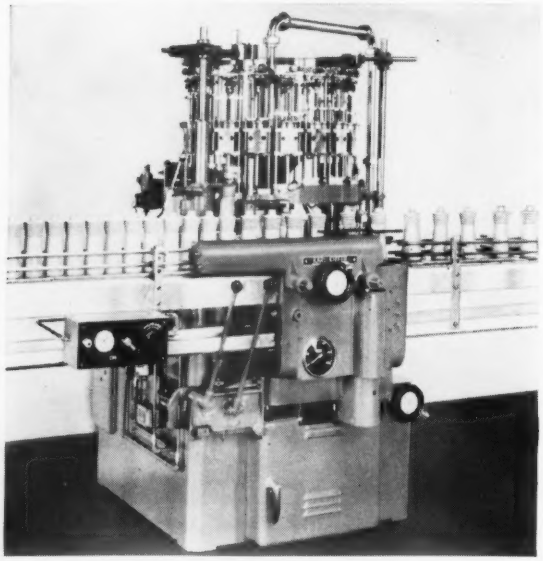
KIEFER

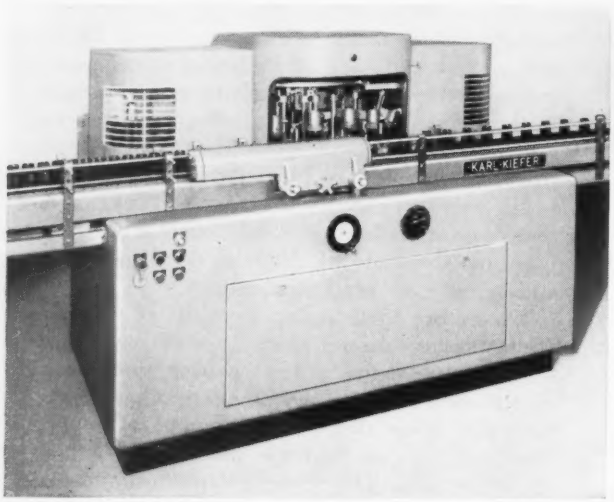
In most prominent plants you'll find KARL KIEFER equipment on the job.
North—South—East—West!

"PIN-POINT"
KIEFER

PRESSURE-VACUUM FILLING MACHINES

Fill containers WITHOUT the use of a SEAL. Amazing accuracy in PLASTICS, in glassware, in F style or #10 tins. Any speed. Fillers in a great range of popular custom sizes.





KIEFER BOTTOMS-UP BOTTLE CLEANER

Uninterrupted working ability! Takes bottles from conveyor in a smooth rotary motion. Containers are inverted, then receive a stout blast of filtered, compressed air. Collected dirt, dust and glass particles go into a bag. Handles from small bottles up to quart size. Speeds up to three hundred units a minute.

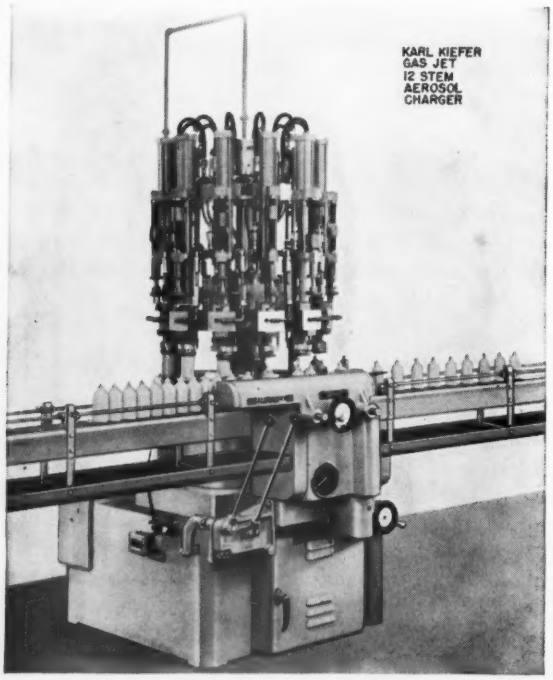
KIEFER "Gas Jet"

AEROSOL CHARGERS

Measure the propellent gas with deftness and precision. SPEEDS UNLIMITED—built in span of amazing delivery rates.

Buy KIEFER QUALITY CONSTRUCTION to give guaranteed production for years and years!

BROCHURE AVAILABLE — WRITE US TODAY



The Karl Kiefer Machine Co.

932 MARTIN STREET CINCINNATI 2, OHIO
NEW YORK • BOSTON • CHICAGO • SAN FRANCISCO • PHILADELPHIA • TORONTO
HOUSTON • VANCOUVER • SAVANNAH • LOS ANGELES • LONDON, ENGLAND

Research laboratories should not be under the same management controls as operating departments.

Management can help to make research more creative by stopping the interference of the accounting department in research affairs. There is no sense whatever in trying to account for every last penny spent by research people. Many, if not most of the research directors I know, spend far too much time preparing budgets, accounting for differences, signing requisitions, and making up reports. This state of affairs grew so bad in the industry that laboratory administrators were instituted to handle the paper work and relieve the research director of all clerical detail. This idea hasn't always worked out too well, because the administrator is very often a half-baked chemist who thinks he knows more about chemistry than the research director, and who in turn is regarded by the chemists as a spy for the accounting department. I think the total annual research appropriation should be regarded as money already spent and not an allocated sum to be spent piece-meal and accounted for penny by penny.

There is a wide open opportunity for laboratory consultants to assist research directors in teaching simplified laboratory procedures and in screening and training younger men. The physical work of every research laboratory can be simplified by men who have the requisite experience and chemical and engineering training. And, if you're lucky enough to have a real research man, let him research. He isn't a clerk.

Combining Shipments

At various times during the past several years, I have tried to convince the trade of the merit of combining shipments, to secure the lowest possible truck and freight rates. Very little, if anything, has been done in spite of the fact that most traffic managers are in favor of the idea. I think we have pampered our customers too much in assuring them of fast service which, in the majority of cases, they do not need. I think, also, that we may have to have another look at the trade practice of paying freight from point of origin to customer. The trade would be far better off if everybody agreed to ship f.o.b. from point of origin.

Since 1946, railway and truck charges have increased 512 per cent, and railway express 643 per cent. In 1946, the railway charge for the smallest shipment was 50 cents; now it is $3.06.

Interim reports from virtually all drug companies indicate that, although sales have been generally satisfactory, profits have fallen off. This is due, in my opinion, to too much largess in all areas of marketing. Price reductions are taking place in several areas of the industry and I think we're in for a lot more. Therefore, it behooves us to examine every marketing procedure with a critical eye, and the cost of shipping is an important one. Lucky is the firm that has a good traffic manager. He can do much to lower distribution costs. I think it is time to give all marketing procedures a thorough going over and certainly it is time to stop providing services that are not really required.

Trimester

Several years ago this column advocated putting schools and colleges on a 50-week year in order fully to utilize the school and college plant, which normally stands idle a good part of the year. Within the year, several colleges have been experimenting with the three-semester year, or trimester. The University of Pittsburgh, in its school of pharmacy, is offering three 15-week semesters per annum. This means that the student can do one and one-half years' work each year. The idea appears to be working out very well. Some colleges object because it interferes with the research time of teachers and reduces the amount of time available for reading and contemplation. I think this problem can in time be overcome by providing more teachers. One college president indicated that 35 per cent of the college budget must be spent whether the school is open or not. Presumably this figure deals with fixed charges. However it may be worked out, I think it a good thing to cram young minds during their formative years. It inculcates sound habits of work and self-discipline. I have never seen proof that a young mind can be overworked.

Merger Aftermaths

According to a recent article in *The Wall Street Journal*, there has been general disillusionment with the diversification mergers that thousands of companies have become involved in during the past few years. Mergers of one kind or another have risen from 700 annually in 1950 to more than 1000 in 1959. Some have been ridiculous, for instance, Bristol Meyers' purchase of a water ski company (which it unloaded as soon as it could). Archer Daniels Midland, one of the world's largest processors of vegetable oils, got into plastic boats, for God knows what reason. Now they're trying to sell the boat company. Cutter expanded into one of the most competitive industries in the world—plastic fabrication. In the late Thirties many pharmaceutical outfits decided that since cosmetics and drugs were sold in the same outlets, the thing to do was to get on the gravy train and sop up some of the cosmetic profits. Everyone of them, without an exception, took a hell of a licking before they got rid of their cosmetic accretions. Recently, Colgate-Palmolive-Peet decided to make a foray into the drug industry and it bought Lakeside Laboratories for a tidy sum. Since then, Lakeside's profits have dropped substantially, owing to the withdrawal from the market of Catron and Inferon. Right now I'll bet that Colgate wishes it had stuck to its lather.

The Wall Street Journal states, "In some cases companies found that the new fields required an entirely different type of management and when they

"Pipe-Line" Homo-Mixer showing intake turbine.

G-W high speed, high sheer homogenizer-mixer.

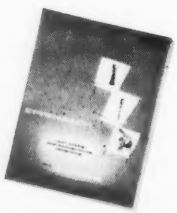
G-W Eppenbach HOMO-MIXERS

For Batch and In-Line Continuous Mixing

For mixing chemicals, cosmetics, pharmaceuticals, protective coatings, dyestuffs and inks to produce emulsions of small particle size and long shelf life, G-W Eppenbach Homo-Mixer and Continuous Flow "Pipe-Line" Mixers are specified by leaders in the chemical and drug processing industries. Both high speed, high sheer homogenizer-mixers insure complete, "no vortex" mixing. Simple to operate, unvarying in accuracy, easy to clean and vibration-free—these precision mixers employ impact and critical hydraulic sheering for maximum contact with materials, thereby keeping mix time to a minimum, while assuring product uniformity.

For in-line processing, the Eppenbach "Pipe-Line" Mixer provides processing of emulsions, slurries, suspensions and related mixtures on a continuous flow basis.

This "one pass" operation enables further processing of materials which may be recirculated . . . or units may be connected in series. Write for the complete story on these and other quality units described in our fully illustrated catalog.



FREE
24-page
Fact Book 600

GIFFORD-WOOD CO. **EPPENBACH DIVISION, Hudson, New York**

Please send me Eppenbach Catalog 600

Name_____

Title_____

Company_____

Address_____

City_____ State_____ ⊕ 2709

failed to provide it, their diversification ventures had rough going."

I've been shouting that from the housetops for years. There is a management attitude and a marketing approach which cannot easily be transferred from one industry to another, or even from one section to another within the same industry. When people who have been nurtured in the proprietary section of the drug industry try to sell ethicals, they invariably fall flat on their fannies. The same thing may be said of ethical people who try to sell proprietaries. Some years ago, when Ponds Extract Company bought out Kathleen Mary Quinlan, a high-priced cosmetic line, they took a shellacking because they couldn't re-orient an organization that had been developed for years to manufacture and distribute inexpensive cosmetics in large volumes.

Some administrators think that a variety of industries can be managed successfully from the financial point of view, provided the individual companies comprising a group are permitted to operate autonomously. That may be so, but Textron under Royal Little had rather a sad experience with autonomously operated subsidiary companies. Textron had purchased 26 companies, each of which was allowed to handle its own affairs independently. But the idea simply did not work, and a group of professional managers was brought in as operating vice-presidents. to tie the subsidiary companies together and keep them on the rails. If the idea of autonomous operation doesn't work in large companies, it is difficult to see how it can be made to work in small ones.

Equipment Leasing

This practice has a great appeal to small and medium-sized manufacturers. Under a leasing plan, they can get all sorts of equipment without having to tie their money up in it. Boilers can be obtained; and also refrigeration equipment, water treating equipment lift trucks and similar items. The rental usually charged is 25 per cent of the cost of the new equipment, per annum, on a five-year basis. This means that the lessee pays 125 per cent of the cost of the equipment which can, of course, be written off as rental, and at the end of the lease period he can obtain the used equipment for a nominal sum. The equipment leasing idea is spreading very rapidly. A number of firms in the trade rent fleets of cars and trucks, and many individuals are finding it less expensive to lease their personal cars than to own them.

Human Engineering

At a recent meeting, Harold Grasse, vice-president of the ASME and a well-known engineer, had this to say:

"We might have the answer to many of our problems if we just understood people better. When we look below the thin veneer of civilization which covers us, we find that psychologically we are just where we were 2000 years ago. The same doubts and uncertainties confuse us that plagued the people then. In spite of our Saviour's teachings we have not learned to get along with our fellow man. The time has come for us to search out those laws which govern human behavior and apply ourselves to the understanding of those laws.

"Engineering in the field of human behavior is just beginning. Our success or failure as a Nation may rest on our understanding of this subject.

"To illustrate the point: What effect does each of the following have on the over-all productivity of any creative engineering group: praise, environment, hours, pressure, rules, happiness, appreciation, loyalty, communication, incentive?

"You will note that none of these bears a dollar sign. These are in the areas of human engineering—knowledge of which can mean dollars to the employer, peace and happiness to the employee.

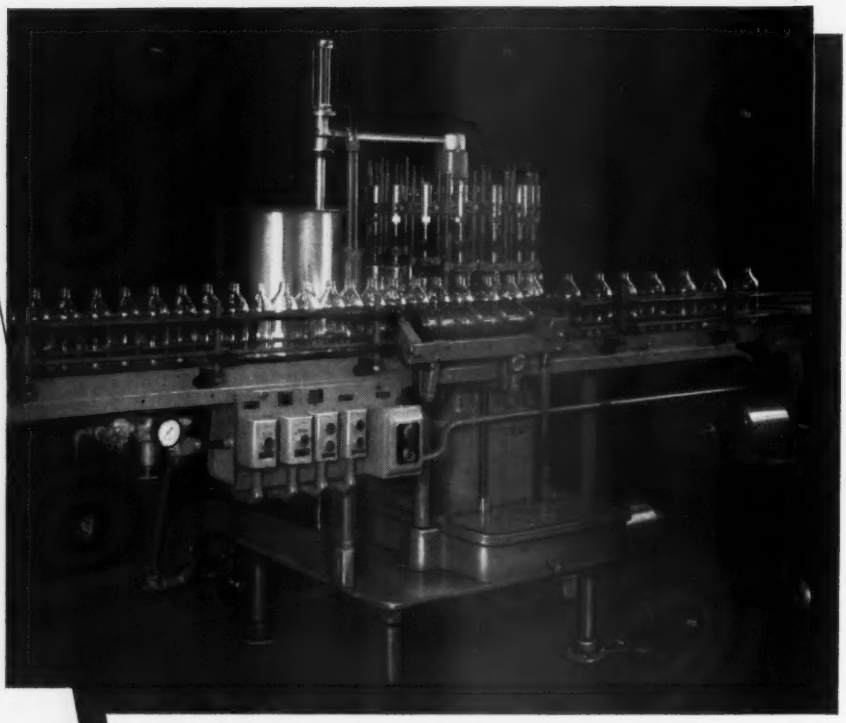
"Before we attempt to colonize the moon I hope we'll know more about people on this planet."

Corporate Ethics

It is reported that Congress intends to study a ban on executive deals with their own companies. The SEC is on the warpath. I think Congress should also investigate stock option plans. In my opinion, most of them are frauds upon the stockholder. The recipient of a stock option is not required to exercise the option if the stock declines below the option price. If it goes up substantially, as so many of them have done, all the optionee has to do is borrow enough money at the bank to exercise his option and then sell enough stock to pay the bank loan. In other words the optionee takes no risk whatever and gains an unearned benefit. I know several men who have become millionaires as a result of stock option benefits, and not one of them took the slightest shadow of risk or earned the largess he obtained as a result of being an officer in growth companies at a particular time. Talk about "unearned increment!" Corporate ethics have sunk to a pretty low state—although they were never very high. It is certainly a hell of a note when the great General Motors Corporation is forced by the Federal Trade Commission to stop misrepresenting in its advertising the gas consumption of the Corvair.

New Mexico Lures Industry

The State of New Mexico is hungry for industry. The laws of the State have been changed to permit towns and cities to issue tax-exempt bonds to pay for land, buildings, and equipment for factories that choose to locate anywhere in the State. The bonds, of course, are guaranteed by the State. So, if you want to get something for nothing, go to New Mexico, but I think your welcome will not be very cordial unless you can demonstrate that you can bring with you the assurance of a sizable payroll.



MEMO

To: J.T.C.

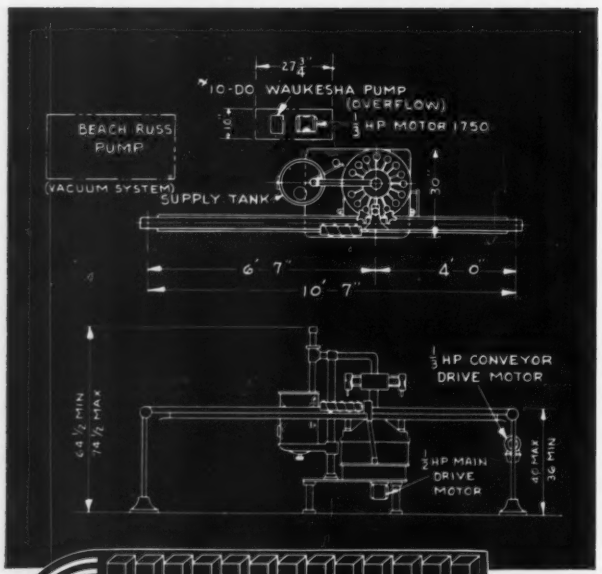
This looks great—let's get all the facts—

K.P.

PNEUMATIC "ALL-PURPOSE" FILLER

DOES ABOUT ALL YOU COULD ASK

in the line of liquid filling



Pick your filling method—vacuum, pressure or gravity principle. You can use any one, or any *combination*, with this machine. It handles liquids or semi-liquids of all types—open mouth or sprinkle top, containers of glass, metal or plastic. And its 16 heads do the job at speeds up to 180 per minute. Similar larger models are available for speeds ranging to 300 containers per minute.

Easy maintenance is another great feature of this machine. Besides quick interchangeability of parts and simplicity of adjustment, the open construction allows ready cleaning without disturbing mechanism.

Write for complete information.

PNEUMATIC SCALE CORPORATION, LTD., 70 Newport Avenue, Quincy 71, Mass. Sales Offices: *New York; Chicago; Dallas; Rochester.* Agents: *Fred Todt Company at Los Angeles, San Francisco, and Seattle. Rockwell Pneumatic Scale Ltd., Edgware Road, London, N. W. 2, England, O. R. M. A., Paris 8, France. Carbert Manufacturing Co. Division, Cambridge, Mass., Delamere & Williams Co., Ltd., Toronto.*

★PNEUMATIC *Packaging and Bottling Equipment*

New Project

The Bureau of Naval Weapons has launched Project KISS, to improve communications. According to officials, the letters stand for "Keep it Simple, Stupid."

Volumetric Rotary Filler

A new Model No. 116 Colton high-speed volumetric rotary filler that provides speeds from 110 to 320 containers per minute is now available from Arthur Colton Company, 3400 E. Lafayette, Detroit 7, Mich. Its outstanding features are a low-speed, large-diameter discharge star wheel that reduces whip forces on the filled container; individual nozzle tip shut-offs; Vernier fill adjustment for each station; and an infinitely variable platform rise adjustment for bottom-up filling.

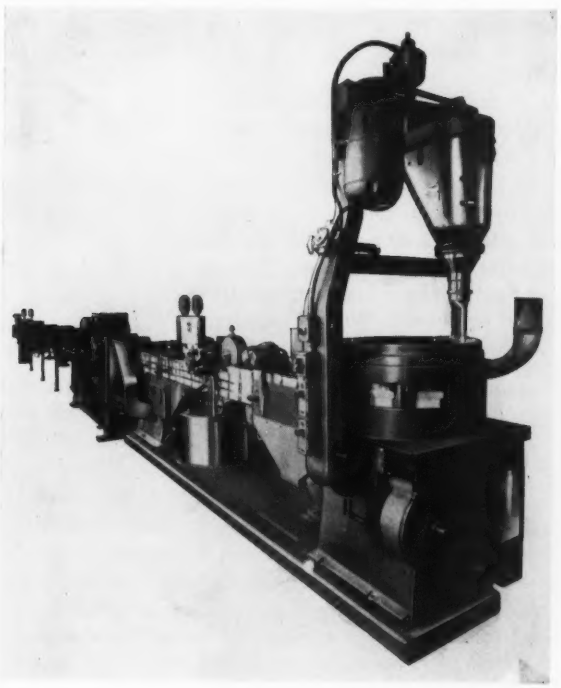
The new machine will fill containers from 1½ to 4 inches in diameter and up to 10 inches high, with liquids, pastes, creams, chemicals, and the like. Amount of fill is adjustable from ¾ to 32 fluid ounces.

High-Speed Carton Filler

FMC Packaging Machinery Division, Stokes & Smith Plant, 4900 Summerdale Ave., Philadelphia 24, Penna. has developed a new filling system for its Neverstop line of automatic carton filling and sealing machines.

Utilizing the mechanical screw principle of auger filling, this new machine achieves higher speeds than those using straight volumetric devices, for many nonfree-flowing powders, granules and dry materials that tend to bridge or pack.

End-opening cartons of almost any type can be handled, from small one-ounce to three-pound sizes, with dimensions of from 3 x 2 x ¾ to 12¾ x 8¾ x 3¾ inches.



Pneumatically Controlled Coder

Industrial Marking Equipment Company, Inc., 655 Berriman St., Brooklyn 8, N. Y., has a new front and side coder featuring a pneumatic control—a pneumatic check and spring, which prevents the printing head from vibrating as it moves forward and back. It also maintains the constant pressure needed between the marker and carton face during the printing cycle.

Designed as an attachment for a compression sealer, the coder marks front and side of filled cartons in one cycle. It can mark, without slowdowns, conveyor-carried cartons spaced about six inches apart, at about 4½ inches from the carton's edge. It has a self-contained ink reservoir, easily interchangeable base-lock rubber type, and roller bearings in the printing head.

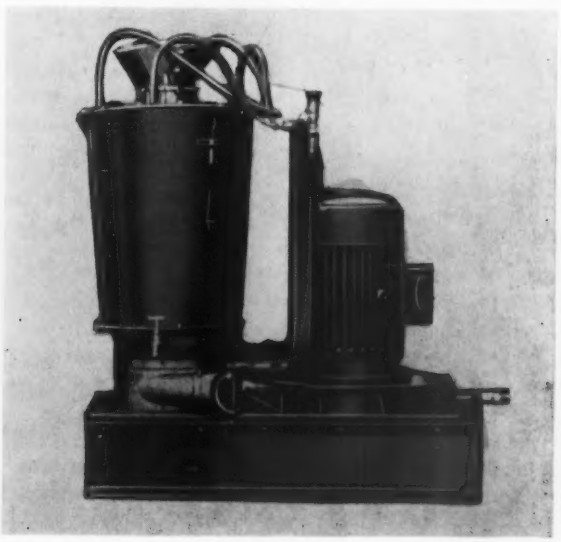
Portable Air-Operated Capper

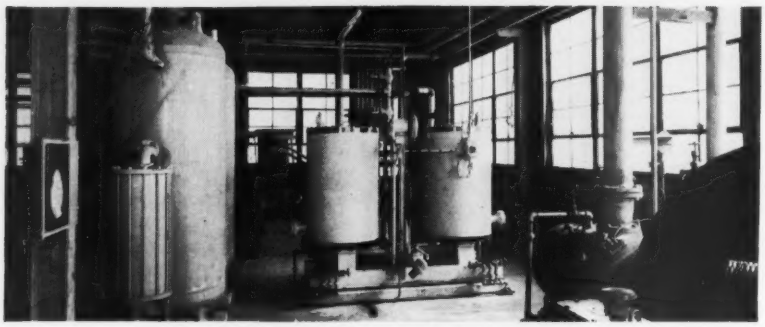
A portable, air-operated Whirlwind screw capper with electronic controls has been developed by Scientific Filter Company, 57 Rose St., N. Y. C. 38. The capper tightens plastic dispensing spouts of polyethylene bottles at the rate of 72 per minute with only two operators.

A slotted clutch does the capping and eliminates spinning of the container, insuring quick seizure and subsequent release of the spout. Many closures and containers of unusual shape can be handled by the unit.

Russell Mill

A mill using a revolutionary technique is available from Russell Constructions Ltd., Russell House, Adelphi, London, W.C.2, England. By generating vortices of air at extremely high velocities and caus-

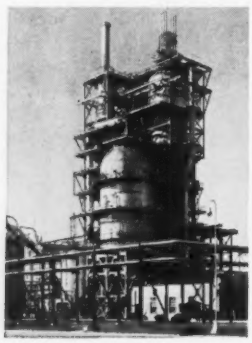




Sohio installs central Lectrodryer for plant's instrument air

The BWC-750 Lectrodryer shown above is serving the fluid catalytic cracking unit at Standard Oil Company (Ohio) in Lima. Replacing two smaller units, it delivers air at -100°F in a volume well ahead of maximum demand. Now there's no chance of instrument failure because of air-line freezeups, no rust or mud to clog instrument ports.

In refineries and other processing plants, small dryers have often been placed at outlying locations, near the operations they serve. This meant many dryers to service and the possibility of freezeups between the air compressor and dryers. Many of these smaller dryers are being replaced with single, large Lectrodryers, able to dry all the air a plant uses.



Case history sheets describing drying operations involving a few cubic feet of air per hour or thousands — drying other gases or organic liquids — will be sent at your request. Tell us your drying problem and we'll recommend drying methods and equipment. Write Pittsburgh Lectrodryer Division, McGraw-Edison Company, 309 32nd Street, Pittsburgh 30, Pa.

ing their paths to intersect, the particles are made to bombard each other, bringing about a more rapid and complete disintegration, particularly of difficult products such as those of a fibrous nature.

The machine is powered by a 15 to 20 hp electric motor, a five-fold V-belt drive imparting speed of about 5,000 rpm to the paddle shaft. Retardation or acceleration of the passage of material through the machine yields either a high degree of fineness at a lower production rate, or a high output of a coarser product. Materials such as chalk can be reduced to particle size less than 50 microns (minus 300 mesh) at the rate of 400 to 600 pounds per hour.

Corrosion-Resistant Check Valve

A corrosion-resistant check valve has been developed by the Chem Flow Corporation, 120 Peterson Ave., Little Falls, N. J. Designed for operation in the vertical position, the all-Pyrex and Teflon construction provides complete visibility as well as excellent corrosion resistance to all liquids except hydrofluoric acid and hot concentrated caustics.

A patented lip seal assures positive sealing against liquids and gases. The design provides high-flow rates at low pressure drop, and maximum operating pressure is 50 psi. Model R check valves are available in sizes of 1, 1½, 2, and 3 inches, and are adaptable to any pipe installation with 150-pound ASA companion flange.

Low-Capacity Metering Pump

A low-capacity metering pump designed for flexibility in industrial applications has been released by Wallace & Tiernan Inc., 25 Main St., Belleville 9, N. J. Interchangeable heads of Tyril or Penton plastic with a variety of trim materials mean custom metering of a wide range of corrosive liquids.

The pump is available with a single head or double heads. Maximum capacities are 250 and 500 gpd respectively. Maximum pressure is 100 psi for both models. The dual-headed model has separate stroke-length adjustment and indication, facilitating the proportionment of two chemicals simultaneously; or twice the volume of the single model can be handled with one pump. Maximum capacity per head of 250 gpd can be reduced to 140, 80, or 40 gpd by simple belt and pulley changes.

Heavy-Duty Water Softener

Permutit Water Conditioning Inc., a division of Pfaudler Permutit Inc., 53 West 43rd St., N. Y. C. 36, has introduced a series of low-price heavy-duty water softeners, the BD Models. They come in four basic sizes from 300,000 to 1,380,000 grains capacity, and from 40 to 100 gallons per minute output. Easily installed from prepackaged assemblies, they operate with high-capacity Permutit Q Resin.

The softeners have the Permutit Multiport valve and double-dish underdrain, which is shipped assembled. Absence of subfill eliminates the chance of upsetting the resin bed.

Poly Bag Top Cut-Off Sealer

Pack-Rite Machines, 407 E. Michigan St., Milwaukee 1, Wisc., has announced a new Poly Bag Top Cut-Off Sealer. The high-speed, rotary machine heat-seals poly bags at high speeds, automatically trims off up to 4¾ inches of excess tops of bags above heat seal, and automatically ejects trimmed-off bag tops, requiring no compressed air.

Bags may be fed into machine at any angle, or horizontally or vertically. Undercarriage guards are supplied to cover belts and pulleys, when the under part of sealer is exposed.

A variable speed drive ranges from 315 to 995 lineal inches per minute, and an electric eye safety device has a fail-safe arrangement and reset button for restarting sealer, should foreign matter get into seal area.

Dehydrators

Dehydrators are now available from The Johnston & Jennings Co., 350 Fifth Ave., N. Y. C. 1. They remove moisture from air taken into storage tanks as the product is being pumped out, preventing dilution and possible contamination of tank contents.

The desiccant is held in a basket-like drawer with wire mesh top and bottom, which slides into a gas-tight housing. Air drawn into the tank passes through the desiccant mass, is absorbed and flow efficiency of the vacuum relief is practically unaffected.

A layer of indicator material on the drawer turns from blue when dry, to pink and then white, when saturated. Average life of the desiccant between reactivations ranges from 30 to 100 days. Available in 2, 3, 4, 6, 10, and 12 inch sizes, the dehydrator is easily mounted.

Mettler

BALANCE TYPE H23 C10

FOR RAPID AND PRECISE WEIGHT CHECKING OF SMALL OBJECTS

Capacity: 10 grams, entirely on optical scale

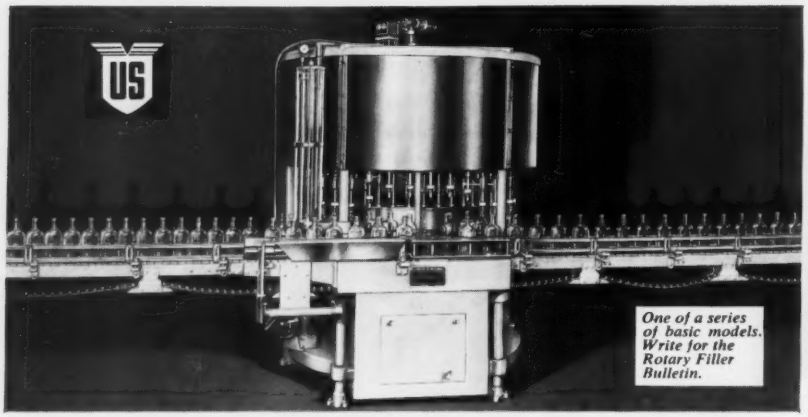
Precision: ± 1 mg

Magnetic damping

Also available with built-in set of weights to bring capacity to 160 grams. (Designation: Type H 23)

METTLER INSTRUMENT CORPORATION
P. O. BOX 100, PRINCETON, NEW JERSEY

Write to us today for full information on the complete line of METTLER quality control scales and balances.



One of a series of basic models. Write for the Rotary Filler Bulletin.

MORE FAMOUS BRANDS TRAVEL THE U.S. LINE

Wherever famous liquid products are packaged, there you are most likely to find a custom-built pace-setter — the U. S. Rotary Vacuum Filler. Throughout the liquid packaging world this great machine is custom-engineered to the requirements of the packaging line it heads. That is why no two U.S. Rotary Vacuum Fillers are ever alike—or why this versatile, automatic machine can never be outmoded.

Does your filling operation fit your volume—is it in line with your competition costwise? Invite a U. S. engineer for an informal discussion. No obligation implied. Address the home office.

U. S. BOTTLERS MACHINERY COMPANY
PACKAGING ENGINEERS
4013 N. ROCKWELL ST., CHICAGO 18, ILLINOIS
BOSTON • NEW YORK • PHILADELPHIA • LOS ANGELES • SAN FRANCISCO • SEATTLE
DENVER • PORTLAND, ORE. • KANSAS CITY • TUCSON • JACKSON, MISS. • ATLANTA
MONTREAL • TORONTO • VANCOUVER • WINNIPEG • SANTIAGO • SAO PAULO • HONOLULU

Most Versatile Multiple Filler
MODEL B-49 STRAIGHTLINE VACUUM FILLER. Fills 4 to 9 containers simultaneously; up to 50 small containers p.m. Lever engages and disengages filling stems, otherwise operation is automatic. Adjustable for all container heights up to 14"; miniature and standard finishes, gallon F-style cans, wide mouth jars. Stainless steel filling stems; plastic on order. Conveyor optional. Write for "Bulletin B-49."

For continuous filling. Containers up to 4½" di., 13" high. Request Bulletin B-2.

For all liquids, all containers. Stainless steel. Write for the "Siphon Bulletin."

Discover the exciting world of spice with

ISO EUGENOL

by SHULTON

Shulton's years of skill and experience in the manufacture of Iso-eugenol assure a truly superior spicy-floral aromatic with absolute consistency in fragrance quality. Meticulous aging imparts to Shulton Iso-eugenol the well-rounded character essential to meet highest standards of odor specification. It is thus indispensable for quality carnation, floral, oriental, fantasy and other popular odor complexes. For these reasons, successful manufacturers depend upon Shulton Iso-eugenol. For information and samples, why not write today?

SHULTON FINE CHEMICALS Division of Shulton, Inc. ■ 630 Fifth Ave., N. Y. 20, N. Y., Circle 5-6263 ■ Branches: Chicago, Los Angeles

Making good products better—through research

Perfumer's Shelf

Synthetic Rose Alcohols

Geraniol, citronellol, nerol and linalol have been widely used for many years. Are the new synthetic products, then, just alternatives because they are more economic and because their prices are less liable to fluctuation? The answer according to Max Erni (*P & E.O.R.* 51: 543, 1960) is definiteily no. Their unprecedented purity encourages their more extensive use in new formulations and will help the creative perfumer in his search for originality. One of their outstanding qualities is that they enhance the fresh, flowery touch: this could prove particularly important in new perfumes for beauty preparations. We know that these alcohols, provided they are pure, do not produce any irritation on the skin and that they are among the safest aromatics for use in skin preparations.

On their first appearance, synthetic geraniol, citronellol and nerol met with some criticism—due mainly to the fact that, so far, the average perfumer has never had these alcohols in a pure form. Geraniol, citronellol and nerol from citronella or other natural oils are always mixtures of two or three of these alcohols. Very often they contain a more or less important amount of terpenes and sesquiterpenes from the original oil. In the case of geraniol, the average figures are: 50 per cent geraniol, 40 per cent citronellol and 10 per cent sesquiterpenes. Most commercial products sold under the name of nerol are mixtures of geraniol, citronellol and nerol (30 per cent to 70 per cent). The corresponding figures for citronellol and linalol are better; but a high grade purity is very seldom achieved.

A simple olfactory comparison between the classical products and the new synthetic materials from pinene seems pointless. Some perfumers were at first inclined to consider the olfactory difference of the synthetic alcohols as a disadvantage; but a closer inspection of the behavior of the pure material has quickly changed this bias.

One of the most interesting findings about some of these pure aromatics is the fact that nerol, linalol and citronellol can be incorporated in a much higher proportion in a formula without unbalancing it. The experienced perfumer has quite a definite, if often subconscious, feeling about the amount of any given aromatic he can safely put into his compound. He knows, for instance, that too high a proportion of geraniol, citronellol—or even nerol—produces an undesirable soapiness. This is due to the small amount of terpenes and sesquiterpenes encountered in the classic isolates and, to some extent, also to the high proportion of geraniol in the nerol.

With the synthetic rose alcohols there is no such drawback. In particular, the nerol in this pure form reveals itself as an outstanding product. Its slightly green and 'dewy' note imparts a touch of natural freshness in all kinds of flowery compounds, which is difficult to achieve with any other material. For a long time, nerol was thought to be a valuable aromatic, but, in some way, it has never lived up to expectations. We know today that this was mainly due—apart from its prohibitive price—to inferior quality. The new and pure synthetic nerol (it is fairly low priced) will give results hitherto impossible to achieve.

Citronellol has more body. It is sweeter and less 'green' than nerol. The pure citronellol ex pinene lacks the often-found coarseness of the older types containing too much geraniol, terpenes and sesquiterpenes and iso-pulegol.

Of all the rose alcohols, geraniol has the roughest odor, but its punch and strength make it a most valuable material. There is some controversy as to whether a 100 per cent geraniol would be desirable. So far, the manufacturers of the synthetic geraniol offer a product which contains some citronellol and nerol. Its outstanding feature is the total absence of terpenes and sesquiterpenes. Geraniol is widely used in the formulation of soap and detergent perfumes—often together with citronella oil, or by-products of a terpene or sesquiterpene character. In such a connection the quality of the geraniol is clearly of minor importance. But there is a very marked trend to forsake these outdated types and more and more of the leading soaps and detergents display a pleasant fancy-floral note which is very much appreciated by the public. The geraniol ex pinene is just the ideal base for building up such clean floral perfumes.

It seems quite unnecessary to stress the point of what a really pure linalol means to the perfumer. This versatile alcohol and its acetate enter into practically every formula. The synthetic product has a smooth top odor. Here, as with nerol, larger amounts may be used without fear that the slightly woody, herby note of the bois de rose quality will appear.

Perfuming Hand Preparations

The type of a perfume used in hand creams and lotions is often based solely on esthetic value, according to V. Vasic (*Manuf. Chem.* 31: 384, 1960). The odor appeal of a perfume adds to the overall acceptance of the product.

In general, "greaseless" hand creams based on stearic acid and

glyceryl monostearate require less perfume than creams containing substantial amounts of mineral oil. The addition of 0.25 per cent of perfume oil to a hand cream often gives the desired effect. However, if the perfume compound used is rather weak, it may be necessary to add up to 0.4 per cent.

It is usually advisable to perfume hand lotions rather lightly. A concentration of 0.1 to 0.2 per cent of perfume is adequate. The point to be considered is initial and final concentration. In a hand lotion especially, there may be about a tenfold concentration from the original lotion to the final film. A normal 0.2 per cent perfume concentration in the lotion may end as too concentrated at 1 per cent on the skin. Some of the perfume evaporates with the other volatile components, but the perfume may require special formulation to give the desired odor in the bottle and comparable quality and strength on the skin.

The perfume should not be added to the emulsion at a time when the emulsion is very hot, because the perfume or some of its ingredients may break down. The perfume should be added during the cooling stage, after complete emulsification, and when the temperature has dropped to 45°-50° C. After addition of perfume, the stirring is continued for at least 30 min. to obtain proper distribution of the perfume.

The perfume in protective creams should cover the odor of waxes, oils and barrier materials and give a definite but unobtrusive fragrance. Perfumes such as rose, lavender, verbena or a fantasy bouquet are most suitable.

Although special protective hand creams are used more often by men than women, the matter of perfuming should not be neglected.

Australian Eucalyptus Oils

The bulk of the Australian essential oil production has always and still does come from the genus *Eucalyptus*. Although nearly every species of *Eucalyptus* yields a volatile oil when its foliage is steam-distilled, fewer than a dozen are of commercial significance at the present time. The first important group of species are those yielding oils rich in cineole, and which find application in pharmaceutical manufacturing. Under this heading are grouped those oils free from α-phellandrene and containing 70 per cent or more of cineole; in other words, oils conforming to the requirements of the various pharmacopoeias. It is current practice among some firms to supply cineole-type oils simply according to cineole content, e.g., 70/75 per cent., 80/85 per cent., and so on. Such oils may be the product of the distillation of mixed leaf from several species, or the result of oil blending by the exporter. In any case, it is the practice to refine medicinal-type oils by rectification; that is, a redistillation in vacuum in which the fore-run and still-residues are rejected. This operation has three advantages: (a) The cineole content may be improved where necessary, (b) objectionable low-boiling compounds are removed in the fore-run, and (c) the oil is dehydrated, thus improving its keeping qualities.

It is possible, however, to purchase medicinal-type oils according to species if desired. One of the first commercially distilled eucalyptus oils of the medicinal type was *E. globulus Labill.* of Tasmania. This species is still distilled in Spain, Portugal, India, and elsewhere from cultivated trees, but is no longer distilled in Australia today, where other species have been discovered which give a far greater yield of oil of better odor. The two most sought-for individual species in this class are "*E. australiana*," a chemical variety of *E. radiata* sieb., and *E. dives* Schau. var. "C." These species produce oils free from the unpleasant cough-producing, low-boiling aliphatic aldehydes which are so objectionable a feature of *E. globulus* and *E. smithii*, R. T. Baker. In addition, the odor of cineole is very agreeably modified by the presence of α-terpineol, citral and methyl cinnamate.

"*Eucalyptus polybractea*" (*E. fruticetorum*, F. Meull.) is a mallee species growing in the more arid regions of Victoria and New South Wales, which is in special demand by reason of the high cineole content (80-90 per cent oil). The odor of the oil of this species is modified by the presence of small quantities of cumenal, phellandral and cryptone. Oil of *E. polybractea* is used for the isolation of cineole, and for the enrichment of pharmaceutical grades of eucalyptus oil deficient in this substance.

The second major group of eucalyptus oils are those known as the industrial oils. Two only need be mentioned — *Eucalyptus dives* "Type," and *E. phellandra*. The oil of *E. dives* "Type," apart from cultivated plants in other parts of the world, is distilled almost entirely in New South Wales and is valued for its (-)-piperitone content, which is usually within the range of 40-50 per cent. The remainder of the oil consists chiefly of lower-boiling terpenes, maily α-phellandrene, α-thujene, α-and γ-terpinene and some ρ-cymene, from which substtances the piperitone may be readily separated by fractional distillation. Chemical separation, e.g., through the bisulfite compound, results in racemization of the ketone which must be avoided if it is to be used for subsequent conversion to levo-menthol. The optical activity of the piperitone is, of course, of no consequence in thymol manufacture.

"*Eucalyptus phellandra*" is the commercial name applied to populations of *E. radiata*, whose foliage on distillation yields an oil consisting of a mixture of cineole (30-60 per cent), α-phellandrene (20-30 per cent), together with α-terpineol (10-15 per cent) and citral (1-5 per cent). This oil has found considerable application in disinfectants, household and industrial liquid soaps and germicidal preparations. The non-toxic qualities of the oil and pleasant odor have made it a popular constituent for such products. *E. phellandra* oil is usually supplied according to the cineole content required by the purchaser, e.g., 38/45 per cent.

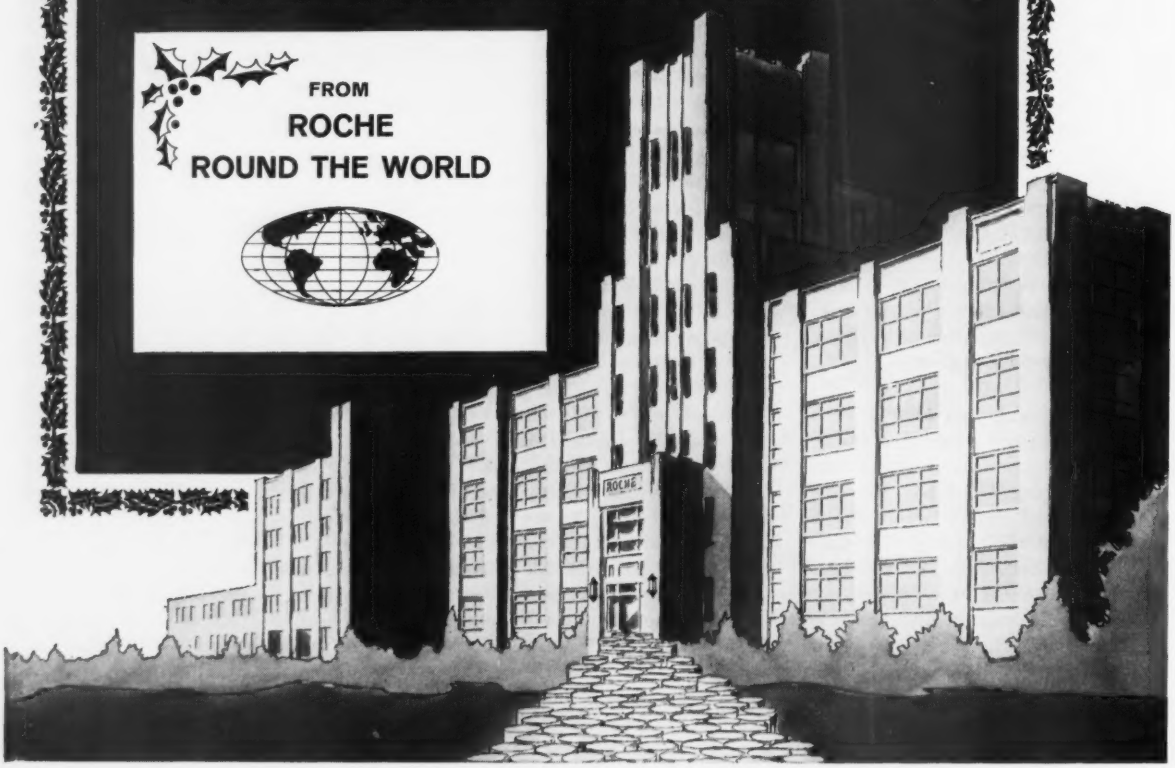
A third group of Eucalyptus oils was once produced in Australia—the so-called perfumery oils. These were: The oil of *Eucalyptus citriodora*, Hook., rich in citronellal (60-80 per cent) and from which citronellol was prepared by reduction; and the oil of *Eucalyptus macarthuri*, Deane and Maiden, rich in geranyl acetate (60-70 per cent), and which was largely used for the denaturing of alcohol for perfumery purposes. Australian production of a citronellal oil from *E. citriodora* cannot complete with the cheap oil supplied by Brazilian plantations of this tree.

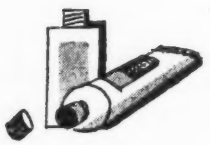
—*Australasian J. Pharm.*, 1960, p. 788.

Season's Greetings -by the Tons

- Our sincerest thanks for the privilege of serving you
- Our best wishes for a very successful and prosperous New Year

FROM
ROCHE
ROUND THE WORLD





Advancing Therapy

Tolbutamide Treatments

Recently the effects of tolbutamide in nondiabetic disorders have been studied. In April, 1959, its successful use in the treatment of acne vulgaris was reported by Cohen and Cohen. The authors found frequent elevations of cellular glucose levels, without a corresponding increase in blood glucose, in patients with acne and introduced the term "skin diabetes." Gates and Hyman, in March, 1960, described reduction of the tremor and rigidity of paralysis agitans (Parkinson's disease) after the administration of tolbutamide. They stated that the observed effects were not related to hypoglycemia.

Seven patients with multiple sclerosis were treated with tolbutamide by G. T. Sawyer (*J.A.M.A.* 174: 78, 1960). In six patients a placebo capsule was alternated with the drug. Most of the patients were, in addition, alternated between regular, high carbohydrate, and diabetic diets while on either tolbutamide or placebo therapy. Definite improvement in symptoms and signs was seen in all patients under tolbutamide treatment except when a high-carbohydrate diet was suddenly started. Deterioration was always seen when placebo capsules were substituted for the tolbutamide. A low-carbohydrate diet yielded favorable and a high carbohydrate diet unfavorable results in most patients.

The relief of anginal pain with tolbutamide in March, 1957 (Singh and Bardhan), led to its trial in a case of thromboangiitis obliterans. The patient suffered from burning and gnawing pain in both feet, and had edema of the right foot with ulceration and gangrene of the big toe, together with glycosuria of toxic origin. The result was a surprise. Within a week, though the glycosuria was unaffected, the relief from pain was very striking and the spread of gangrene appeared to be halted. Since then I. Singh and N. S. Brara (*The Lancet* 1960, II, 625) have treated 36 cases of thromboangiitis obliterans with tolbutamide and, except in 2 cases of neuritic pain, the results have been consistently good.

36 cases of thromboangiitis obliterans were treated with tolbutamide, 0.5 g. thrice daily with meals. Within three to four weeks there was spectacular relief of intermittent claudication and rest pain in the 34 patients who had these symptoms, but the neuritic pain of the 2 other patients did not respond. When tolbutamide therapy was discontinued, relief persisted for one to seven weeks.

We cannot explain the beneficial effect of tolbutamide in thromboangiitis obliterans. The intermittent claudication of ischæmic origin, the burning and gnawing pain due to thrombosis, and the pain, tenderness, and discoloration associated with thrombosis of veins are relieved, but the paroxysmal lancinating pain of ischæmic neuritis is unaffected. Similarly, other pains of neuritic origin—e.g., pain of diabetic and alcoholic neuritis, tabetic pains, sciatica, and root-pains of spinal tumours—are not relieved; but patients with hemiplegia and parkinsonism benefit to some extent. A report by Gates and Hyman on the use of tolbutamide in paralysis agitans corroborates this.

The drug seems to have an antiinammatory action, judging by the subsidence of pain, swelling, and inflammatory action, judging by the was no obvious increase in blood-supply. In a case of rheumatic carditis, where low fever had persisted for several months in spite of salicylate and cortisone therapy, the temperature fell to normal within a week of starting tolbutamide, and the drug also controlled fever following severe measles. In both cases, the fever returned when tolbutamide was discontinued (after the temperature had ben normal for three days) but subsided again when the drug was administered again.

On the analogy of the relief given by tolbutamide in angina pectoris, it is likely that tolbutamide also prevents the local formation or accumulation of pain-producing metabolites.

As one of the characteristics of thromboangiitis obliterans is remission and exacerbation, the effect of tolbutamide maintenance therapy cannot yet be assessed; but 3 cases in which the disease was rapidly spreading and which have been treated for over two years have shown continuous clinical remission.

A biphasic response of blood fibrinolytic activity to a single injection of insulin has been reported in diabetes, consisting of an initial reduction in parallel with blood-glucose levels, followed by a rebound increase at low blood-glucose levels (Fearnley, Vincent, and Chakrabarti). This suggested that the sulphonylurea compounds, by lowering blood-glucose levels, might increase blood-fibrinolytic activity in nondiabetic subjects. The conjecture has proved correct, but the observed increase of fibrinolytic activity is not directly related to hypoglycaemia; some other mechanism may be responsible. G. R. Fearnley, R. Chakrabarti, and C. T. Vincent (*The Lancet* 1960, II, 622) report the effect of tolbutamide or chlorpropamide in eight arteriosclerotic inpatients.

Of three patients given tolbutamide, one showed a prompt increase

of fibrinolytic activity and temporary symptomatic improvement, but became resistant to this drug; one showed increased fibrinolytic activity and sustained improvement; and one showed an inconstant fibrinolytic response, and was transferred to chlorpropamide, which was followed by increased fibrinolytic activity and symptomatic improvement.

Of six patients given chlorpropamide, two showed increased fibrinolytic activity and sustained improvement, both of which continued in case 3, in spite of cessation of the drug; two showed increased fibrinolytic activity, and to date improvement which can be classed as moderate; one showed increased fibrinolytic activity but no improvement; and in one case the drug appeared to reduce fibrinolytic activity.

Estrogen Antagonists

Free testosterone, and its methyl, ethyl, vinyl and ethynyl derivatives were tested by R. A. Edgren (*Proc. Soc. Expt. Biol. Med.* 104: 662, 1960) as antagonists of estrone-induced uterine growth and vaginal smear changes. Methyl testosterone was most potent of the compounds; there were no major potency differences among remainder. These findings are in contrast to 19-nor derivatives, which are considerably more potent and among which the ethyl is most potent.

A series of steroidal spirolactones, of interest for their aldosterone antagonistic actions, were tested by R. A. Edgren and R. L. Elton (*ibid* 104: 664, 1960) as estrogen antagonists in a mouse uterine growth test. The 2 activities did not appear to be correlated. Progestational activity similarly showed no direct relationships. SC-8109 and 2 other 19-nor derivatives of SC-5233, 3-(3-oxo-17β-hydroxy-4-androsten-17α-yl)propionic acid γ-lactone, were estrogen antagonists.

Pharmacology of Antibiotics

Reports of undesirable cardiovascular effects associated with antibiotic therapy have appeared in the literature. Bateman et al observed hypotension following parenteral administration of high doses of oxytetracycline. Shock and respiratory failure were noted by Farhat et al in patients receiving large doses of antibiotics. An acute episode of hypotension following the intraperitoneal instillation of streptomycin was reported by Pittinger and Long. Swain et al have demonstrated negative inotropic action of streptomycin, dihydrostreptomycin, chloramphenicol, chlortetracycline, oxytetracycline, and tetracycline using the dog heart-lung preparation.

This study by F. Leaders, C. B. Pittinger, and J. P. Long (*Antibiotics and Chemother.* 10: 503, 1960) concerns cardiovascular, smooth muscle, and neural effects of streptomycin sulfate, dihydrostreptomycin sulfate, chloramphenicol succinate, tetracycline hydrochloride, and oleandomycin phosphate.

Tetracycline, oleandomycin, dihydrostreptomycin, streptomycin, and chloramphenicol, listed in order of decreasing potency, produced hypotension in anesthetized rabbits. All antibiotics caused slowing of the heart. Oleandomycin was observed to be most active in producing irregularities, followed by tetracycline, chloramphenicol, streptomycin, and dihydrostreptomycin.

Contractions of the isolated rabbit hearts were depressed by streptomycin, dihydrostreptomycin, oleandomycin, and chloramphenicol. These drugs are listed in order of decreasing activity. All doses of tetracycline greater than 250 μg. produced irreversible depression. Streptomycin, dihydrostreptomycin, chloramphenicol, and oleandomycin, in doses up to 80 mg., did not produce this response.

Results of the isolated rabbit ileum experiments demonstrated a depressant action of the antibiotics on smooth muscle. It is possible that the hypotension observed in anesthetized animals is partially related to a similar effect upon vascular musculature.

Inhibition of the nictitating membrane preparation suggests that some of these antibiotics may have ganglionic blocking activity.

Antidiabetic Stabinol

McColl presented his findings on the hypoglycemic activity of a group of substituted thiadiazoles, synthesized by Chubb and Nissenbaum, which, like tolbutamide, have no antibacterial properties.

One of the most potent of these substituted thiadiazoles, was made available for this study by M. F. Healy and J. D. Arne and (*Brit. Med. J.* 1960 II, 913). This was the methoxy isobutyl derivative known as FWH 114, or "stabinol." This material produces hypoglycemia after both oral and parenteral administration in fasted rats, rabbits, and dogs. In the rabbit, for example, significant hypoglycemia occurs within an hour and reaches a maximum in five to six hours. Normal blood-glucose levels are reached within 24 hours.

Like tolbutamide, some functional pancreatic islet tissue appears necessary for hypoglycaemic response to stabinol. It also promotes the storage of glycogen in the liver of fasted rats. With normal hypoglycemic doses in animals stabinol appears to possess no other important pharmacological activity. Hypoglycemia may be reversed by the administration of glucose. Stabinol is devoid of any antibacterial action.

The acute oral LD_{50} of stabinol in rats and mice is about 900 and 950 mg./kg. respectively. Chronic toxicity studies in Sprague-Dawley rats for period up to nine months at doses of 150 and 300 mg./kg./day by the oral route revealed no significant toxicity.

The antidiabetic effect of stabinol has been evaluated on a group of 33 patients with diabetes of the maturity onset type. Of this group three were lost to the study.

Of the remaining 30 patients, 15 (50 per cent) were better controlled with the oral agent than they had previously been on insulin therapy, 9 (30 per cent) were controlled equally well on either regimen, and 6 (20 per cent) were not as well controlled on oral therapy as they were on insulin therapy.

Liver-function studies and blood and urine findings remained normal throughout the study.

There were no side-effects or abnormal reactions.

Antimicrobial Marine Fauna

A limited number of sea animals were screened by C. P. Li (*Proc. Soc. Exptl. Biol. Med.* 104: 366, 1960) for antimicrobial activity against *Staphylococcus aureus*. In addition to abalone juice, whose antimicrobial activity had been reported, extracts of oysters and clams possessed marked inhibitive effect. Substance of this nature may be valuable therapeutic and prophylactic tools.

Compounder's Corner

Glyceryl Monostearate

Glyceryl monostearate, exhaustively discussed in an article by E. S. Lowrer (*S.P.C.* 33: 1201, 1960), is a hard, wax-like white to cream colored edible product, slightly greasy to the touch; of very little odor, and practically tasteless.

It has good resistance to light, to heat, and to oxidation, and possesses surface-active properties including emulsifying, stabilizing, lubricating, dispersing and plasticising functions.

The product sold as G.M.S. generally consists of a mixture of the three possible stearates and palmitates of glycerol, together with small amounts of free glycerol, free fatty acids and traces of moisture, and traces of oleic acid esters, or soap. G.M.S. of high diester content gives thicker emulsions than with high mono-ester content.

Three types of G.M.S. are available (a) neutral and non "self-emulsifying," (b) neutral "self-emulsifying," and resistant to acids and electrolytes. (c) "self-emulsifying," not resistant to acids and electrolytes.

Self-emulsifying G.M.S. contains soap or another auxiliary emulsifier which enables it to be emulsified readily when mixed with hot water. Potassium and other water soluble soaps will act as auxiliary emulsifiers, as well as polyoxyethylene fatty acids esters, e.g., polyoxyethylene monostearate containing 22 mols. ethylene oxide.

Certain grades of G.M.S. and similar monoglycerides on the market have been subjected to molecular distillation to raise their monoglyceride content and improve their quality generally.

Distilled monoglycerides, including the monostearate, give gels with water, and water plus certain other materials. Such gels, containing 15 to 25 per cent of water, are not dispersible in water or soluble in oil to any degree. In the absence of excess water these mixtures can be worked up into optically clear greases.

Many water-soluble materials can be added to the water before the gels are prepared, offering a new solubilization tchnique.

Glyceryl monostearate of the self-emulsifying type usually contains soap, and if it is used in emulsions along with water containing acids or electrolytes, for example calcium and magnesium, these will react with the soap to form double-decomposition products, e.g., "lime soaps" which results in breakdown of the emulsion, as this reaction virtually destroys the emulsifier and replaces it with a useless reaction product.

The behavior of G.M.S. as an emulsifier depends on whether or not it contains soaps or synthetic emulsifiers. Such monoglyceride/-soap mixtures or monoglyceride/-synthetic detergents mixtures produce more stable emulsions of cosmetic or related materials than do either the soap, detergent or monoglyceride alone.

Neutral technical G.M.S., a mixture of mono-, di- and triglycerides, possesses similar emulsifying properties to those of pure mono- and diglycerides, if it is free from auxiliary emulsifiers. It is generally agreed, however, that it is the monoglycerides in the commercial mixture which are the really active emulsifiers, with diglyceride next in importance.

Non-self-emulsifying grades of G.M.S. which normally produce w/o emulsions are effective stabilizers in some o/w emulsions, even 1 per cent being often effective, inhibiting creaming and separation.

Used in conjunction with sodium lauryl sulfate (1-3 per cent), nonionic surface active agents, or a cationic wetting agent, neutral, non-emulsifying G.M.S. produces useful o/w cosmetic bases resistant to the addition of electrolytes and acids (e.g., for deodorant creams).

When self-emulsifying G.M.S. is a mixture of soap and neutral G.M.S., the emulsion it produces is still anionic in nature and is unstable in the presence of electrolytes, although more stable than a straightforward soap-stabilized emulsion.

Typical auxiliary emulsifiers used along with non-self-emulsifying G.M.S. to make it self-emulsifying include alkali, ammonia and amine soaps, or the necessary chemicals to form them *in situ;* aryl alkyl sulfonates, sulfated fatty alcohols, sulfonated oils or monoglycerides, cationic compounds, sulfosuccinates and polyoxyethylene derivatives of fatty acids or fatty alcohols.

The mechanism by which G.M.S. of the self-emulsifying quality produces an oil-in-water emulsion has been described as a process in which firstly the water of the intended emulsion extracts the soap from the G.M.S. and this then forms a complex at the interface with the oil-soluble, water-insoluble glyceryl monostearate.

Self-emulsifying G.M.S. containing free fatty acids is regarded as a more effective emulsifier than one containing no free fatty acids.

G.M.S. makes neutral, "greaseless" and non-staining cosmetic creams and ointment bases, and is sometimes employed in lipstick as a bromo-acid solvent.

It is an effective aid in the formulation of absorption base creams of the water-in-oil type, helping to overcome oil leakage in such emulsions. Non-self-emulsifying glyceryl monostearate is a more efficient emulsifier for the production of water-in-oil emulsions if the mono-ester content is kept at a maximum.

Diglycerides, etc., reduce its efficiency as an emulsifier of this type.

In conjunction with bentonite or colloidal clay it forms an excellent greaseless ointment base tolerating tannic acid, boric acid, calamine, etc.

It gives creams of varied consistency according to the concentration used, which may cover the range 3-25 per cent, yielding thin liquid emulsions to thick, heavy, soft creams. As an "additive," even 0.5/1 per cent imparts creaminess, stability and excellent texture to many cosmetic emulsions.

Water separation on freezing is reduced or eliminated in stearate-type cosmetics creams if 2 per cent G.M.S. is used in place of 2 per cent stearic acid.

Lipsticks

Lipsticks contain two types of coloring materials; the major part being insoluble barium and calcium lakes (the latter preferable and safer), pigments of great intensity and contributing most of the opacity of the product. The remaining coloring matter consists of tetrabromofluoresceins (bromo acid) and related dyes which stain the skin of the lips, providing a longer-lasting color, as the pigmented wax coating quickly wears off.

In its simplest form a lipstick contains a solvent, which is a suitable oily vehicle for the dyes and pigments, and a solute—a balanced mixture of waxes to effect solidification. Two main solvents are castor oil and oleyl alcohol—but liquid paraffin fractions are also commonly used, and all these are available in special odorless and tasteless grades suitable for cosmetic use. The properties of these basic vehicles are suitably modified by the addition of esters, with or without marked surface activity, to give a stick of the characteristics required. Castor oil although extensively used as a grinding medium for pigments, and as a solvent for the staining dyes, does not dissolve bromo-acid very readily (only about 1.7 per cent). Super stain lipsticks include a glycol or glycol derivative as a solvent for the dye—these being water-soluble penetrate the lips more readily than castor oil and promote staining by the soluble dyes. Propylene glycol although popular as a dye solvent in lipsticks is actually no more effective for bromo acid than castor oil, but butylene glycol will dissolve up to 20 per cent of the dye. Liquid polyethylene glycols are also satisfactory dye solvents (up to 10 per cent bromoacid). As they are not miscible with the castor oil, propylene glycol monoricinoleate is added as a mutual solvent.

A new three phase lipstick composition patented by Wick (U. S. Patent 2,873,229) contains a high proportion of soluble dyes but no lake colors. The dyes are mixed with a quantity of a glycol solvent insufficient to dissolve them completely, giving a solution with fine dye particles in suspension, which take the place of lakes and give color and opacity to the final mass. This suspension is dispersed in a fluid carrier such as oleyl alcohol or proylene glycol monolaurate, that is immiscible both with the glycol and the wax base, and has little solvent effect on the dyes but some affinity for the skin. This oily carrier enables the soluble dye to be distributed evenly throughout the wax base and facilitates the application of the lipstick to the skin. The stick is described as a 3-phase composition since it consists of a continuous and a dispersed liquid phase, as well as the solid waxes. The normal super stain lipstick having a mutual solvent for glycol and pigment is a two phase product.

When a three-phase lipstick is applied to the lips, the liquid phases carrying the dyes seem to migrate through the wax coating to the moist surface of the lips, on which the dyes, whether dissolved or in-pigment form, become fixed. Within two or three minutes after application, most of the coloring matter has gone out of the wax onto the lips, producing an intense color. The pigment carrier, being incompatible with the waxes, finally exudes from the surface of the film and is blotted off with tissue. A certain amount of solvent also comes through the wax film. After blotting, the lips are covered with a hard deposit of nearly transparent wax. If the lipstick is applied correctly, there is little transfer of color to glasses, cigarettes and other objects or persons touched by the lips. The stain produced on the lips by the three-phase lipstick is the same shade as the lipstick itself. —*Chem. Prod.* 23: 253, 1960.

Vitamin A Solution Stability

Seven samples of aqueous multivitamin drop formulations were prepared by R. W. Lehman et al. (*J. Am. Pharm. Assoc. Sci. Ed.* 49: 363, 1960) using three different samples of all-*trans*-vitamin A palmitate. These were assayed after three, six, nine, and twelve months' storage at 37°, and after nine, twelve, and fifteen months' storage at 25°. The rate of apparent deterioration of vitamin A was dependent on the assay method used, being least for the antimony trichloride blue-color assay, intermediate for the U. S. P. spectrophotometric assay, and greatest for the rat liver-storage bioassay. The vitamin A isomer composition was studied by reaction with maleic anhydride and by examination of infrared absorption spectra of purified vitamin A aldehydes made from the preparations. Results of this study indicate that during storage in the multivitamin drop preparations, all-*trans*-vitamin A isomerizes to a mixture containing not only all-*trans*- and 2-mono-*cis*- (neovitamin A), but also significant quantities of 6-mono-*cis*- and 2,6-di-*cis*-isomers, which have low biological activity.

British Patents

Brit. Pat. 839,923. June 29, 1960. "Permanent Waving of Hair." The Gillette Co., U. S. A. Relates to cold permanent waving of hair with a composition comprising alpha-dimercaptoadipic acid and derivatives thereof. Such a composition is in dry form and easily applicable. Usual additions such as perfumes, opacifying agents, dyes or hair conditioners may be added to the dry solid waving composition, or the lotion, if desired.

Brit. Pat. 841,903. July 7, 1960. "Cosmetic Creams." Wicken Products Inc., Milwaukee, U.S.A. While almost all fat components used in ointments or creams have excellent covering properties they hinder the outward penetration of water vapor given up by the skin. It has now been found that by adding small amounts of an alkyl branched long-chained aliphatic compound to the fat components in cosmetic creams, the water vapor porosity of the fat components is substantially increased.

Skin Research

"Anti-Wrinkle" Cream

The recent flurry of excitement in the industry concerning the imminent marketing of cream that will actually remove wrinkles seems to be based upon a licensing agreement between Revlon and Ciba. The cosmetic company is supposed to be testing a product based on the Ciba patent U. S. No. 2,791,534, issued to Fritz Schaaf and Franz Gross on May 7, 1957. The patent states that pregnenolone and its derivatives have been found to stimulate the growth of the epidermis and lead to an increase in the layers of the epidermis cells and to cell proliferation accompanied by enlargement of the nuclei and cytoplasm. A usual cosmetic cream or lotion can be used as a carrier for the pregnenolone, its benzyl ether or its esters with lower aliphatic carboxylic acids. Among the advantageous additives are petrolatum, triglycerides, Peru balsam and especially esters or ethers of benzyl alcohol such as the benzyl ester of lauric, oleic or cinnamic acids, pregnenolone benzyl ether and the benzyl ester of benzoic or alpha-naphthoic acid. These compounds increase the action of the pregnenolone or its derivatives. It is also advantageous to add substances which stimulate the circulation of the skin.

Suppressing Sebaceous Glands

It is now well known from the results of de Graaf, Ebling, Lapiere and others that estrogens cause a reduction in size of the sebaceous glands, while androgens have the opposite effect. Clinically it has been realized that androgens may predispose human skin to acne, and that this condition may sometimes be countered by the administration of estrogens. Evidently it is one of the characteristics of an estrogen to stimulate the rate of sloughing of the sebaceous cells, and consequently to reduce the size of the gland.

Since Bullough has shown that the stimulus to epidermal replacement, also commonly a function of an estrogen, can be obtained in full by the use of steroids which are either weakly estrogenic or non-estrogenic, it was considered of interest to attempt to discover how far sebaceous gland suppression is in fact a characteristic of the estrogens. The present paper by W. S. Bullough and E. B. Lawrence (*J. Invest. Dermatol.* 35: 37, 1960) records the effects of sebaceous gland size of a variety of steroids and other substances with varying degrees of estrogenic potency.

Adult male mice were used in experimental groups of 5 animals each. Each mouse received 100 γ of the test substance in 0.25 ml. solvent at each of the 15 injections which were given during a 3 week period.

Most of the previous observations on sebaceous gland suppression have been obtained with estradiol-17β. As a preliminary these observations were repeated and at the same time the other natural estrogens, estrone and estriol, were tested together with progesterone. The great activity of estradiol-17β in causing shrinkage of sebaceous glands was confirmed and both estrone and estriol are similar in this respect. In the conditions of the experiment progesterone is without effect.

The experiments were then continued using a wide range of synthetic steroids and their derivatives in an attempt to discover whether the effect of sebaceous suppression can be induced in full by some weakly estrogenic or even inactive substance. For many of the substances tested, the degree of estrogenicity is similar to the degree of sebaceous gland suppression which was induced.

There are, however, a few notable exceptions. For instance it is evident that estradiol-17α and 16-epiestriol, which are both negligibly estrogenic, are nevertheless able to exert a powerful suppressing action on the sebaceous glands. This result demonstrates clearly the separability of the functions of estrogenicity and sebaceous gland suppression.

In order to emphasize this point still further, a search was made for some highly estrogenic substance which lacks the power to influence the sebaceous glands. Since no estrogenic steroid or stilbene was discovered to possess this characteristic, the search was extended to include the doisynolic acids. These acids have the curious characteristic that they are highly estrogenic in mice but relatively inactive in human beings. The results obtained show wide differences. On the one hand, bis-dehydro-doisynolic acid methyl ether is both a powerful estrogen and a powerful suppressor of the sebaceous glands, while on the other hand, doisynolic acid has little or no effect on the sebaceous glands.

The precise manner in which the estrogens induce a shrinkage of the sebaceous glands is not yet clear, although it appears probable that this shrinkage is basically due to a greatly increased rate of sebaceous cell destruction. The size and secretion rate of a sebaceous gland evidently depends on two main factors: the rate of cell replacement by mitosis, and the rate of cell destruction to release the sebum.

Of the present results the most significant are those which demonstrate the separability of the two functions, estrogenicity and sebaceous gland suppression. While all the natural and most of the artificial estrogens tested are active in sebaceous gland suppression, it has been possible to discover a strong estro-

gen which lacks this power and a non-estrogen which possesses it.

The practical importance of this conclusion is obvious, and following the present investigation it has been possible to co-operate in testing the value of a non-estrogenic sebaceous-gland-suppressing steroid in cases of acne.

A product Actriol, Organon Labs., Ltd., contains 2.5 mg. 16-epi-estriol per gram of cream, and is prescribed for acne treatment.

Anaflora Detergent

Preliminary screening surveys have indicated that Anaflora, a new anionic detergent, possesses promising anti-microbial activity. A pilot study was designed by L. J. Miedler et al (*J. Invest. Dermatol.* 35: 269, 1960) therefore, to investigate the antifungal and antibacterial properties of Anaflora and Anaflora incorporated in either detergent or soap bars.

The subjects in the study were male junior and senior medical students or members of the hospital staff. Volunteers were instructed to substitute the Anaflora detergent bar or soap bar for their regular toilet soap and shampoo. In addition, each subject was directed specifically to wash his feet daily. All other antifungal and antibacterial preparations were discontinued.

The Anaflora bars were compounded by The Dow Chemical Company. The detergent bar contained 30 per cent Anaflora (Dowfax 6A2) and 70 per cent Igepon AC-78: the soap bar contained 30 per cent Anaflora and 70 per cent Ivory Soap.

Of the 22 individuals treated, all gave clinical evidences of tinea pedis although on initial examination only 20 were KOH positive. Of the volunteers with tinea pedis, 11 continued unchanged, 5 improved minimally and 5 experienced exacerbations of their disease. Three of these exacerbations were somewhat marked with the patients developing prominent scaling, fissuring and vesiculation.

The results of the *in vitro* antifungal activity of Anaflora against pathogenic fungi are shown in Table II. Most of the species examined were completely inhibited at minimal concentrations of 5 to 10 mg. per ml medium. These figures indicate a lower activity of Anaflora as compared with other antifungal agents examined in this laboratory such as griseofulvin, nitrostyrenes and cinnamic acid derivatives. These latter have been found effective against the same fungi at concentrations of 1 to 10 micrograms per ml medium.

A comparative *in vitro* study of the antifungal activity of Anaflora, Igepon AC-78, Duponol C and Ultrawet K indicates that Anaflora exerts the least antifungal activity.

Bacteriologic: Analysis of the data permits the following preliminary comments relative to the possible effects of regular washing with Anaflora on the staphylococcal and streptococcal flora of the skin of the 22 volunteers.

Coagulase positive staphylococci were isolated from three subjects initially, but not at the 4 and 8 week intervals.

Twenty-three "strains" of coagulase negative staphylococci were isolated initially and the number of such "strains" had increased to 39 and 41 at the 4 and 8 week intervals respectively.

Hemolytic streptococci were isolated from 9 subjects initially but from only three subjects at the 4 and 8 week intervals.

The number of subjects showing non-hemolytic streptococci at the three test intervals was essentially the same.

Preliminary laboratory studies with 50 coagulase positive and 25 coagulase negative strains of staphylococci have demonstrated a selective staphylococcidal effect of Anaflora, *viz.*, coagulase positive organisms are more readily inhibited at low detergent concentrations (80 micrograms per ml) than are coagulase negative organisms. However, at higher concentrations (320 micrograms per ml) the bactericidal effects are noted against both types of staphylococci.

Hormone Absorption

The topical application of radioactive estradiol-17β and progesterone in an ointment base was studied in shaved guinea-pigs and in human subjects by J. W. Goldzieher and R. E. Baker (*J. Invest. Dermatol.* 35: 215, 1960). Upon application to human skin for 1 day, 16.5 to 44 per cent of the radioactivity appeared in the urine within 72 hours and approximately equal amounts of radioactivity from each steroid were present. There was significant individual variation. A lower rate of urinary excretion was observed in guinea-pigs. The percutaneous absorption of progesterone seems to be more rapid than that of estradiol, and there was some evidence suggesting that higher concentrations of estrogen accelerate the percutaneous passage of these steroids.

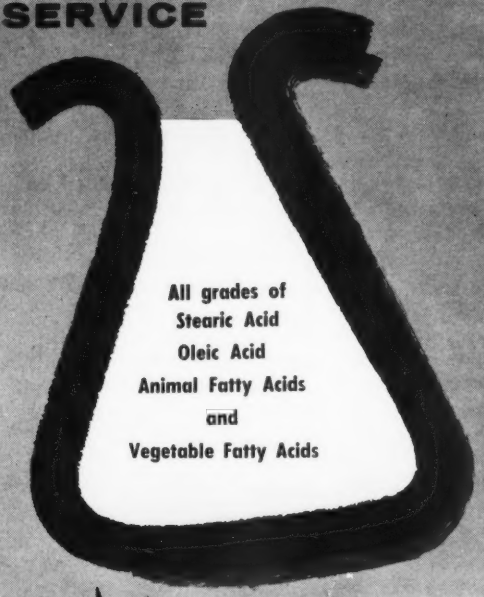
Hydroquinone Monobenzyl Ether

Originally, MBH came to the attention of dermatologists because it was able to produce a milk-white leukoderma in human skin. Its use therapeutically in ointments, during the past five years, has brought to light some effects which were not appreciated in the earliest reports according to C. S. Dorsey (*Arch. Dermatol.* 81: 245, 1960). Thirteen per cent of persons who use an ointment containing MBH will develop contact dermatitis and some of these will develop a semipermanent dermal or epidermal hyperpigmentation. In countries where ointments containing MBH are available over the counter, i.e., without a prescription, there have been numerous case reports of severe dermatitis and bizarre hypo- and hyperpigmentary changes in the skin resulting from their indiscriminate use by patients who were not under the care of a physician. However, even in this country, where such ointments cannot be obtained without the consent of a physician, there have been a few similar case reports. It is not known how frequent these more serious reactions are when the treatment is under the supervision of a physician.

The contact dermatitis which follows the use of MBH topically varies from mild to severe. Evidently minute traces of an ointment containing MBH are sufficient to produce a dermatitis and leukoderma at sites distant from the site of application. For this reason patients who are using such ointments should be cautioned to wash their hands carefully after each application.

Although dermatitis will occur in approximately 13 per cent of persons who use ointments containing MBH, leukoderma and hyperpigmentary changes will probably occur with a frequency of less than 1 per cent.

PRICE
QUALITY
SERVICE



All grades of
Stearic Acid
Oleic Acid
Animal Fatty Acids
and
Vegetable Fatty Acids

WELCH
HOLME
& CLARK

CO., INC. One Hudson St., N.Y.13, N.Y.
BArclay 7-4465

Now...

ZINC
UNDECYLENATE
U.S.P.

from 1 lb. to a Ton

Over 1400 Chemicals in Stock
We Do Not Buy or Sell Surplus Stock Chemicals
Send for Catalog

Ruger Chemical Company, Inc.
62 NINTH AVENUE, N.Y.11, N.Y. - CH 2-7950

CHEMICAL
SPECIALTIES

GELLOID
(Pure calcium Carragheen sulfate)

GUMS
ARABIC—TRAGACANTH—KARAYA
(Whole, granular or powdered)

HYDROSULFITE of SODA
(Pharmaceutical grade)

SULPHONATED OILS
(Vegetable and mineral bases)

Ask for
"The Story of Water Soluble Gums"

JACQUES WOLF & CO.
Chemicals

A SUBSIDIARY OF
NOPCO CHEMICAL COMPANY
60 Park Place, Newark, N. J.
Plants: Clifton, N. J., Carlstadt, N. J.,
Los Angeles, Calif.

USP

**DIAMOND
CALCIUM
CARBONATE**

Ask for quotations on this top-quality, low-priced, U.S.P. dense grade by one of the world's leading producers of calcium carbonates.

Shipped in 50-lb. bags from conveniently located warehouse stocks. Call or write today. Diamond Alkali Company, Union Commerce Bldg., Cleveland 14, O. Sales offices in principal cities.

Diamond
Chemicals

Trade Literature

Ampul Washer

R. N. Price, 59 Spring Road, Manhasset, N. Y., has issued a bulletin describing its Metromatic Washer for ampuls and vials. Illustrated, it describes the various interchangeable washing heads, method of loading, washing cycle, installation requirements, and size and shipping rates.

Portable Liquid Fillers

Electronically controlled, portable liquid fillers for all liquids are described in a 24-page illustrated catalog from the National Instrument Company, 2701 Rockwood Ave., Baltimore 15, Md. Usage, applications, attachments, and operation of the Filamatic filters are given, as well as description of positive displacement piston-type pump assemblies for dispensing free-flowing liquids and viscous materials.

Dryers

Lydon Brothers, Inc., 85 Zabriskie St., Hackensack, N. J., has made available a four-page brochure on its dryers for chemicals, pharmaceuticals, plastics, and pigments. A variety of standard cabinet and truck-loading dryers, and dryers for special applications are illustrated.

Glass Pipes

A catalog on Kimax glass pipe is now available from Fisher & Porter Company, Warminster, Penna. It describes the complete Kimex line manufactured by Kimble Glass Company, subsidiary of Owens-Illinois. Also included are various fittings, flanges, joints, gaskets, and hardware.

Trademark Selection

The legal, marketing, advertising, and public relations considerations in choosing a trademark are discussed by nine experts in a 92-page book, Trademark Selection, published by The United States Trademark Association, 6 East 45th St., N. Y. C. 17. It includes an index and a word list of trademarks and trade names, sells for $2.00.

Air Testing and Filtering Equipment

Dust Topics, published by Gelman Instrument Company, 106 N. Main St., Chelsea, Mich., describes the company's air sampling, health physics, physical testing and filtering equipment for use in the pharmaceutical industry. Its 44 illustrated pages give specifications, operating characteristics, prices.

Ethers and Glycol Diethers

A 40-page booklet describing the properties and uses of ethers and glycol diethers is available from Union Carbide Chemicals Company, 270 Park Ave., N. Y. C. 17. Included is information on physical properties, solubilities, constant-boiling mixtures, specifications limits, test methods, storage, handling, shipping, and references.

Plastics Stabilizer

A compilation of information on the instability of polyethylene, polypropylene, and polyvinyl in the presence of light and oxygen, and a new stabilizer for these, is available from Guardian Chemical Corporation, 38-15 30th St., Long Island City 1, N. Y.

Imaginative thinking

produced a better

CALCIUM GLUCONATE

Mallinckrodt alone makes calcium gluconate electrolytically, with the single purpose of giving you a fine product adaptable for easy tableting or capsuling and unsurpassed for yielding clear, stable parenteral solutions.

Mallinckrodt

Industry's Books . . .

Handbook of Chemistry And Physics *(A Ready Reference Book of Chemical and Physical Data), 42nd ED., Editor in Chief, Charles D. Hodgman, M. S., Professor Emeritus, Case Institute of Technology, 3481 pp., The Chemical Rubber Publishing Co., Cleveland (1960), cloth,* **$12.**

The Handbook of Chemistry and Physics, continuing the policy of the past, is revised at frequent intervals. The general features and scheme of arrangement, which have received extensive endorsement in former editions, have been retained. The aim throughout has been to present in condensed form as large an amount of accurate, reliable and up-to-date information in the fields of chemistry and physics as is consistent with convenience in form and the possibility of wide utility and distribution. A large proportion of the tables have been compiled especially for the Handbook from various authoritative collections of data and from the current journals. The five indexed sections of this new edition have been enlarged to a total of almost 3500 pages, integrating latest information in physics, chemistry, heat and hygrometry, mathematics, and quantities and units. For example, some new revisions and additions include analytical reagents, nuclear spins, diffusion of metal into metals, surface tension of inorganic and organic solutes in water. Here is an extremely economical purchase at the price.

Synthetic Analgesics Part I—Diphenylpropylamines, *by Paul A. J. Janssen, Research Laboratoria Dr. C. Janssen n.v., Beerse, Belgium, 183 pp., Pergamon Press, New York (1960), cloth,* **$7.50.**

Synthetic Analgesics describes and discusses the present state of knowledge of the methods of synthesis and the physical and chemical properties, as well as the analgesic activity, of diphenylpropylamines. Other pharmacological properties of these compounds are also mentioned. As far as possible, the facts are presented in the form of tables, to enable the reader to judge the weight of agreement among various authors, and to correlate chemical structure with biological activity.

The Dyslipidoses, *by Raul Fleischmajer, M.D., Department of Dermatology and Syphilology of the New York University Post-Graduate Medical School, 509 pp., Illus., Charles C. Thomas — Publisher, (1960), Cloth,* **$16.**

Doctor Fleischmajer has produced one of the very few comprehensive, up-to-date expositions on this vast, fundamental, and increasingly important subject. To establish a correlation between clinico-pathologic findings and physiopathogenetic mechanisms, he has carefully selected and systematically assembled the material presented here. The result is a simplified classification of the dyslipidoses based on modern dynamic concepts and factual data, including not merely morphologic and clinical findings, but also genetic aspects, biochemical results and histochemical reactions.

Simplified Drugs and Solutions for Nurses (Including Arithmetic), *by Minette Nast, R.N., member of faculty, Hospital for Special Surgery, Second Ed., The C. V. Mosby Co., St. Louis, (1960), 29 pp., soft cover* **$1.50.**

In preparing this manual for use in schools of practical nursing, an earnest endeavor has been made to extract from the courses given to professional nurses all the facts necessary to ensure the utmost safety to all concerned, especially the patient, and to impress upon the student of practical nursing the gravity of her responsibility when she is assigned the important duty of preparing and administering medications.

Advances in Enzymology and Related Subjects of Biochemistry, *Edited by F. F. Nord, Fordham University, Vol. 22, 567 pp., Interscience Publishers, Inc., New York, (1960), cloth,* **$14.**

This, the 22nd volume of the well-known series, "Advances In Enzymology," covers: Genetically Controlled Differences in Enzyme Activity, by J. R. S. Fincham; The Active Site and Enzyme Action, by D. E. Koshland, Jr.; The Induced Synthesis of Proteins, by Harlyn O. Halvorson; The Synthesis of Nucleotide Coenzymes, by J. Baddiley and N. A. Hughes; The Synthesis and Hydrolysis of Sulfate Esters, by Alexander B. Roy; The Biochemistry of Sulfonium Compounds, by Stanley K. Shapiro and Fritz Schlenk; The Biosynthesis of Cholesterol, by G. Popjak and J. W. Cornforth; Coenzyme Binding, by Sidney Shifrin and Nathan O. Kaplan, and Saulenchromatographie von Enzymen, by F. Turba.

Studies on the Technique of Skin Testing in Allergy, *by W. J. F. Van Der Bijl, M.D., 100 pp., Charles C. Thomas—Publisher, Springfield, Ill., (1960), cloth,* **$5.50.**

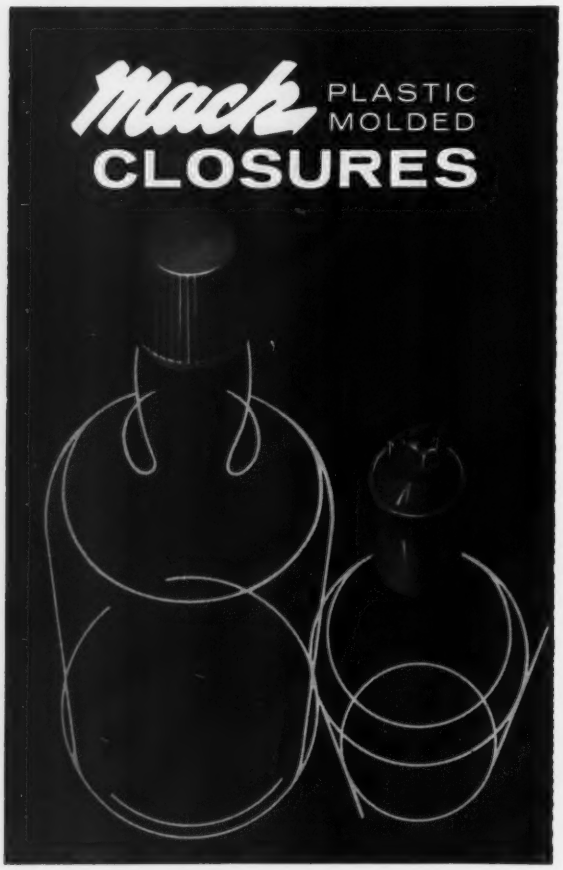
This monograph in which the various arguments are set forth lucidly gives the reader insight into the technique and interpretation of skin tests, the use of arranging various allergenic extracts in groups, the freeing of syringes and needles from allergens, and ensuring the sterility of solutions of allergens which are in constant use. Special attention is also paid to the technique of the Prausnitz-Kustner test, in which the use of a compressor is recommended for quantitative testing. This book is a reliable guide for every practitioner concerned in the study of allergy or interested in the subject.

Diseases of the Nails, *by V. Pardo-Castello, M.D., formerly Professor of Dermatology and Syphilogy, University of Havana, and Osvaldo A. Pardo, M.D., formerly Instructor in Dermatology, University of Havana, Third Ed., 284 pp., Illus., (1960), Charles C. Thomas—Publisher, Springfield, Ill., cloth,* **$8.50.**

The newest additions in medical literature as well as the authors' own recent observations and experience are contained in this concise review. Important affections are vividly illustrated by 113 excellent photographs. Of particular interest and importance is a list of 61 occupations in which nail affections are common, together with their symptoms and causes. The excellent bibliography includes 461 choice references. The edition also contains the newest treatment on onychomycoses. It is a worthy sucesssor to the highly praised second edition.

BETTER
CLOSURES
BETTER
SALES!

Select your closures from the Mack quality line. Mack molded plastic closures incorporate the pleasing appearance and practical utility that make lastingly good impressions on your customers. Whether your product is masculine or feminine, there's a closure to match the decor of your package.



Call or write Mack for closure samples and quotations, or ask for recommendations on your custom requirements.

MACK MOLDING COMPANY • INC
WAYNE, NEW JERSEY

Serving the Packaging Industry Since 1920

Other plants located in Arlington, Vermont and Waterloo, Quebec, Can.

(*Continued from page 787*)

pulsory licensing on the U. S. A. are now exploiting the elderly referred to in the beginning of this article as a springboard for inflicting compulsory licensing on the drug field. Whatever the cause of the situation in which the elderly find themselves, it is evident that instituting compulsory licensing is not the cure.

RECENT PATENTS

2,955,110—Am. Cyanamid—Substituted Pteridines.

2,955,114—Lakeside Labs. — Nor-Piperidyl Glycolate Esters.

2,955,983—Colgate — Liquid Antiperspirant Composition.

2,955,984-5—Bristol-Myers—Dentifrices.

2,956,052—Chas. Pfizer — 5α,6β-Dichloro-16,17αEpoxyallopregnanes.

2,956,053—Miguel A. Romero—Esters of 6β,16β-Dihalo-3β5α17α-Trihydroxypregnan-20-One.

2,956,054-5—Chas. Pfizer—Nitrogen Heterocyclic Compounds.

CREATIVITY IN RESEARCH

(*Continued from page 763*)

further inquiries for detailed information in the form of technical brochures.

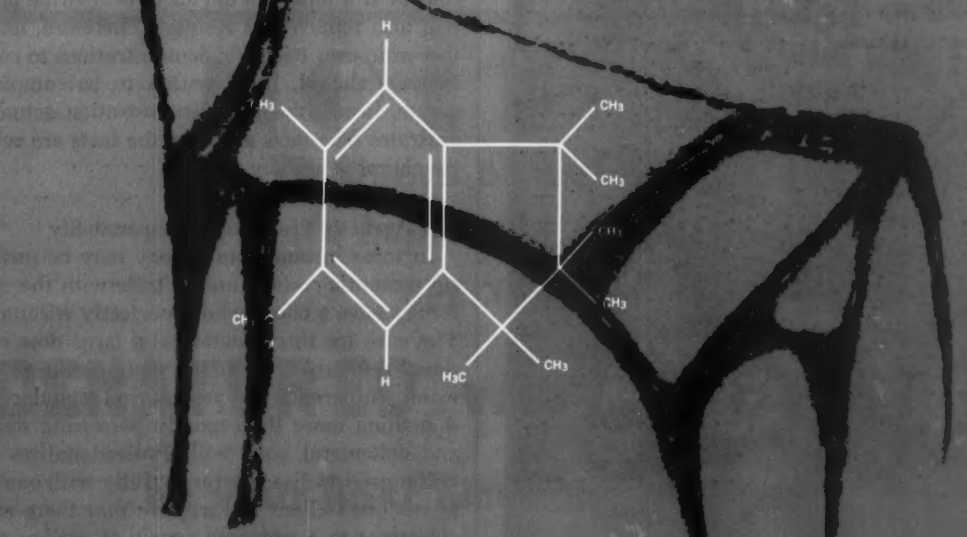
In a recent issue of *Chemical and Engineering News*, I found 11 pages of direct interest to our group. I checked off three items on the "Reader Information" page to get technical brochures offered. Three other pages offered similar bulletins in individual advertisements, requiring separate letters to the suppliers. Four pages of ads were simply cut out and filed under appropriate categories, since they were sufficiently informative in themselves. One advertisement stimulated a completely unrelated idea not involving the supplier's product, which started one of our chemists on the track of an interesting consumer item. In addition, a news item of a report by a leading university caused us to write directly to the author for a copy. Finally, one article was Verifaxed and passed on to our legal department and product managers. The important thing to note in all of this is that none of the items of interest would have been spotted from a simple perusal of the table of contents.

An important factor in making good use of technical information is the willingness and ability to reproduce it by some quick photo-reproduction system so that it can be cross-filed, if this seems desirable, and copies passed on to interested parties. Many chemists also have had postal cards printed with a message requesting copies of specific articles or reprints, with blank spaces for titles, page numbers, and the name of the journal in which the piece appeared. A stack of such cards kept handy in your desk will save some secretary a lot of work; they can be filled out in a minute, before the thought is forgotten or someone else borrows the journal.

(*Continued on page 863*)

TONALID

the new tone
in musk odorants
diffusive
exalting
powerful



PFW

POLAK'S FRUTAL WORKS: MIDDLETOWN, N. Y. • AMERSFOORT, HOLLAND • BREMEN, GERMANY • BRUSSELS, BELGIUM • MANIZALES, COLOMBIA • SOFLOR LTD.-PERIVALE, ENGLAND

at Bristol Laboratories . . .

STOKES TORNADO MILLS CUT 30% FROM NALDECON DRYING TIME

Naldecon, a long acting nasal decongestant, is being manufactured faster thanks to a new process in which Stokes Tornado Mills figure prominently. With the Stokes Mills, Bristol realizes a 30% savings in drying time. With its large 360° screening area, the Tornado Mill can handle wet material quickly and easily. In addition to speeding drying, the Mills provide more even granulations of the material than the equipment formerly used.

The versatile Stokes Mills are used for both dry and wet granulations. Wet agglomerates are reduced to a uniform size before drying. Bristol reports they get better drying, improved product quality, greater product uniformity, and fewer fines.

Find out how the Tornado Mill can increase the efficiency of your operations. Stokes Advisory Service will run tests on a sample of your material . . . at no obligation. Call or write . . . today.

Operator loads one of three Stokes Tornado Mills which is used in the manufacture of Naldecon at Bristol Laboratories in Syracuse, N.Y.

Size Reduction Equipment Division

STOKES

F. J. STOKES CORPORATION
5500 TABOR ROAD, PHILADELPHIA 20, PENNSYLVANIA

(*Continued from page 754*)

results and check them again *before* any claims are made to the public. The agencies' responsibilities to the advertising industry and to the public can be satisfied in no other way.

Valid Laboratory Demonstrations

One ancillary and subsidiary role that science plays in the preparation of advertising messages deserves mention. I refer to the laboratory demonstrations that are often used in commercials. The Federal Trade Commission does not condemn all demonstrations, and we recognize that laboratory procedures must often be telescoped in order to fit within a one-minute time slot. But we do insist that demonstrations actually demonstrate, that a valid scientific conclusion can be reached by the procedures demonstrated, and that the facts proved by the demonstration have some relevancy to the accompanying claim of efficacy for the advertised product. Some demonstrations used in the past have "proved" facts that are demonstrably false. For instance, stomach acid will *not* burn a large gaping hole with charred edges in a cloth napkin. Other demonstrations show, in an atmosphere of hushed breathlessness, facts which are true but which are totally irrelevant to the claim of efficacy made for the advertised product. A demonstration that a product will remove a residue deposited on a surface does not support a claim of efficacy if a flick of a dry cloth or a swipe of a finger will also remove the residue. Therefore, any advertiser who uses scientific demonstrations to convey his message should, if he wishes to be completely accurate, insure that the demonstration actually demonstrates true facts and that the facts are relevant to the claims of efficacy.

The Agency's Professional Responsibility

In some instances an agency may be unwilling to cut semantic corners and to trifle with the truth, but it may have a client who is perfectly willing to do so. The cure for this situation is a large dose of professional responsibility. To me professionalism is a stern word. Adherence to professional standards means something more than merely possessing some vague and ephemeral good will. Professionalism means a willingness to disagree respectfully with one's clients; to tell one's client forthrightly that there are severe objections to a proposed course of action; to recommend an unobjectionable program; and, yes, to resign from the service of the client if he persists in violating the ethical precepts of his adviser. If advertising men develop this sense of professionalism, and if advertisers absorb the lesson that good will and public reputation slowly and painfully acquired may well be dissipated by an ill-advised and offensive short-term campaign, public respect for advertising will be assured.

The acceptance of professional responsibility re-

quires courage. It also requires a sense of one's own worth and dignity, and a sense of the importance of one's work. The man who works only for money can have no true dignity. The man who is prepared to sacrifice everything for financial gain can have no pride in his work. The man who worships nothing but the dollar can never demonstrate the quiet courage necessary to defend the integrity of his work. If advertising is ever to free itself from the racy, shady repute that so many would ascribe to it, then advertising men and women must develop and continually exhibit a sense of professional integrity.

Freedom Entails Discipline

The alternatives to a continuing exhibition of effective self-discipline by the advertising industry are not pleasant to contemplate. The abdication of self-discipline merely invites imposed discipline. For, rest assured, aware consumers and honest competitors will not long tolerate the trampling of truth in the pursuit of avarice. It would be the height of irony for the advertising industry to "wince and cry aloud" at tighter government controls, if it has amply demonstrated that it recognizes no other controls.

The enjoyment of freedom depends upon the discharge of responsibility. If the advertising industry wishes to remain free, subject only to limited legal controls, there is no better time than the present to demonstrate that the industry deserves to be free. •

(Continued from page 755)

$5 a bottle for an order of 17,040 bottles. In negotiations with Gyma Laboratories of New York, which will import for the Danish concern, the V.A. succeeded in getting the price down to $3.84.

The V.A. acknowledges this purchase will contain some hidden expenses. About $8,200 will be required for customs duties, $800 for transportation from New York to three supply depots, and $1,000 for inspection fees. A U. S. Navy inspector will check on the production facilities overseas and the Food and Drug Administration also will make a check. All thing considered, however, the V.A. felt it had made a good deal.

These purchases worry domestic producers for several reasons. First, it is feared that the Government, by example, may encourage many private nonprofit groups to expand their overseas drug purchases as a means of cutting prescription costs. Second, if the Government itself continues to increase its foreign purchases, the American pharmaceutical industry will lose one of its best customers.

Total Government spending on drugs is estimated at more than $82,000,000 annually. The V.A. spends over $24,000,000 of this sum, the Military Medical Supply Agency $35,000,000, the General Services Administration $15,000,000, with additional purchases being made by the Department of Health, Education and Welfare and other groups.

NOTICE!

To Users of SDA-AO

For An Improved End Product

SPECIFY :

"DENATURED with BITREX"

on your next alcoholic purchase

The New Formula SDA-40 is Crystal Clear and Leaves No Oily Film or Residue.

AVAILABLE NOW FROM YOUR SUPPLIER

For BITREX Technical Data Contact

WALKER CHEMICALS INC., 22 West First Street, Mt. Vernon, N. Y.

Thus Government spending amounts to only about 3 per cent of total drug purchases. But it's a profitable 3 per cent, offering high volume per order and low selling costs. And it's a prestige market.

While local government bodies have not as yet emulated the V.A.'s action, there are distinct signs of ferment. The State Welfare Department of New York, for instance, recently ruled that prescriptions for persons on relief should be filled with generic-name drugs. This regulation, which became effective on Nov. 1, ruled that, when trade-name preparations are used instead of listed generic items, the pharmacist shall be reimbursed on the basis of wholesale cost of the generic items plus the state markup.

The Welfare Department's action was promptly challenged by the Pharmaceutical Society of the State of New York. The Society asked that the Department suspend the ruling pending further study. It pointed out that the state pharmacy law prohibits substitution in prescriptions and that the new regulation would shift to the dispensing pharmacist the burden of both product choice and liability for that choice.

The drug producers, of course, share the pharmacists' uneasiness over this regulation. They claim it will shift business to small drug houses which, because they bear none of the burden of heavy research spending, do not fulfill a constructive role in the pharmaceutical industry.

Just as government agencies are looking for new ways to reduce the costs of buying drugs, so private groups also are increasing their efforts in this direction.

One of the most noteworthy of the new plans was recently announced in New York City. It is called the Medstore Plan, Inc., and was organized by 13 major labor unions including the Seafarers International Union, the International Ladies Garment Workers Union, and District Council 37 of the American Federation of State, County and Municipal Employees.

Perhaps the most important participant in the new program is, at this stage, not formally playing a major role. This is the Health Insurance Plan, which provides medical insurance for thousands of city employees and other workers.

H.I.P. officials are interested in Medstore as a means of providing the framework for a vast prepaid drug insurance plan under which members would pay a set annual fee covering all prescription needs.

In the short run, however, Medstore's aims will be more modest. Its backers plan to set up a small chain of drugstores in the New York metropolitan area which would cut at least 30 per cent from the cost of prescriptions. By the end of its first year of operation, these officials believe the program will embrace more than 1,000,000 union members and their families.

In addition to dispensing drugs, the organization will maintain a central testing service to check the quality of drugs sold and serve as a clearing house for imformation relating to the effectiveness of new drug preparations.

The New York Retail Druggists Association already has launched a vigorous attack on the new Medstore program, charging that the stores would hurt neighborhood druggists, and that they might dispense inferior drugs.

The National Association of Retail Druggists also has been heard from. In a recent talk in Denver, President Ralph R. Rooke noted that the New York situation was too important to be ignored by his group's membershaip. "From the viewpoint of pharmacy as a profession the situation involves all of us," he said. "There is more at stake than many of you may realize. It is an unjustifiable invasion that jeopardizes independent enterprise in the retail drug field and, in addition, the jobs of numerous drug store employes."

Besides challenging the Medstore idea, Mr. Rooke also denounced various mail-order prescription plans which have spring up in recent months. He contended that these plans constitute an unfair form of competition and, moreover, that they do not provide the savings claimed by their promotors.

Two nonprofit mail order programs have been initiated by the National Retired Teachers Association and the Bakery and Confectionary Workers International Union.

The retired teachers group claims to fill between 250 and 350 prescriptions a day for its 400,000 members at discounts of more than 25 per cent from regular pharmacy prices. The Bakers Union supplies a smaller membership—about 80,000—with cut-rate prescription items.

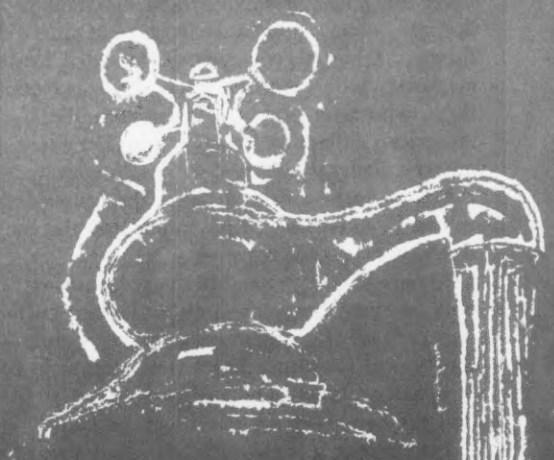
State pharmacy associations already have mobilized a major campaign against these mail order plans, but they have had difficulty lining up government support. A bill banning mail sales was introduced in Congress but has been stymied.

Despite these various movements, drug officials concede they have not been hurt seriously as yet. Government overseas buying has not built up to ominous levels; programs like the Medstore Plan are still in the formative stage (the head of the National Farmers Union recently announced that his group also might go into the drug business to counter "unmet health needs"), and the mail-order prescription services are still small and frail.

Nonetheless these pressures all offer long-term sources of concern.

Any major increase in Government overseas spending would sting domestic producers. And, if the Medstore idea caught on across the country, the neighborhood pharmacist would clearly have something to ponder. The "profit squeeze" would then

(Continued on page 842)



Availability You need, you call, and you get, from Roche. This instant availability is a reassuring reason why perfumers of excellence use Roche Aromatics. Large stocks, continuously being produced by Roche quality synthesis, make it possible to ship you—immediately—all you want of what you want. Remember this advantage of Roche Aromatics.

Linalool Roche
Linalyl Acetate Roche
Geranyl Acetone Roche
Nerolidol Roche
Ethyl Linalool Roche

ROCHE

Samples from principal essential oil distributors or

Aromatics Division HOFFMANN-LA ROCHE INC.

Nutley 10, N. J., NOrth 7-5000 New York City, OXford 5-1400

Roche®

for fragrance bases
that *APPEAL...* it's

Tombarel

for finished compounds,
soaps, perfumes and
cosmetics

For over 123 years Tombarel has been adding distinction and prestige to finished products. We at Tombarel offer not only background and know-how but also the finest in modern methods of product research and development. Let us help give your product distinction.

NOW!

Complete line of aerosol tested perfume compounds available for your approval.

Sole American Representatives for
TOMBAREL FRERES, S. A. Grasse, France

TOMBAREL
PRODUCTS CORPORATION
725 Broadway
New York 3, New York

IN CHICAGO • A. C. DRURY & CO., INC., 219 E. NORTH WATER ST.

(*Continued from page 840*)

be built into the industry on a more nearly permanent basis—and the villain would be, not costs, but rather an entirely new dimension of competition.

At this stage, however, these long-run projections do not appear particularly threatening. For one thing, the buy-abroad idea, if extended by the Government, will certainly run into opposition from those who now are demanding that the U. S. keep American dollars in America. The President recently ordered Federal agencies to cut foreign spending to the bone in an effort to stem the increasing deficit in the U. S. balance of payments and the consequent drain on U. S. gold reserves.

Meanwhile, the neighborhood pharmacy is probably too well entrenched an American custom to be knocked off by union-sponsored programs. When the typical consumer has a prescription to fulfill. he is usually under some pressure to get it filled fast, and the neighborhood pharmacy beckons.

Nontheless, it is clear that there are mounting pressures to reduce the high cost of drugs and that these pressures will increasingly manifest themselves in diverse ways.

COLOR ADDITIVIES

(*Continued from page 757*)

for such use. The lists are not interchangeable, being exclusively for cosmetic (List D) and for drug (List E) use. These lists are admittedly incomplete. If any previously noncertifiable color additive not now included in these lists has been commercially used before July 12, 1960 in cosmetics or drugs, it is deemed to be provisionally listed; however, you should ask the FDA to list it.

During the 30-month period from July 12, 1960, a tremendous amount of pharmacological testing will have to be done on color additives. Many will require long-term ingestion studies at considerable cost, and some may be ruled out by the tests. To avoid unnecessary expense and effort, some means must be found to set up a reduced list of color additives that will meet the needs of industry and reduce the expense. At any rate, it is obvious that, whenever possible, an FD&C color or lake should be used.

DIURIL CREATES A NEW MARKET

(*Continued from page 759*)

improvement: It caused excretion of sodium and chloride in almost equivalent amounts, whereas Diamox caused the excretion of sodium—but not chloride. Diuril thus loomed immediately as an effective drug in the treatment of hypertension, a condition necessitating a low salt intake.

From discovery to marketing is not an overnight process in pharmaceuticals. Dr. Frederick C. Novello, a young Merck chemist, synthesized Diuril in 1955; it was not made available to physicians until 1958. The intervening time was used for testing and prep-

aration of production and marketing facilities. Experiments on mice, rats, and dogs were conducted for one year. Tests on human patients began in October, 1956, and continued for 14 months. During the clinical trials, the drug was used by more than 1,000 physicians, including doctors in 18 foreign countries. Merck built a $1,500,000 production plant. Marketing plans involving journal advertising, direct mail, and detailing called for a far higher outlay. Although Merck has long been an important producer of bulk chemicals, Diuril was its first big trademarked item and required a multi-million-dollar promotion budget.

Advertising, exposure of clinical results, and distribution of the product were coordinated with battle precision. D-month was January 1958, when Merck set off all its communications firepower. The timing was well-nigh perfect. The January 11 issue of *The Journal of the American Medical Association* carried four articles reporting the spectacular results achieved by Diuril in the clinical trials. Since the drug itself had been delivered to druggists all over the nation the week before, it was available to fill prescriptions in quantity.

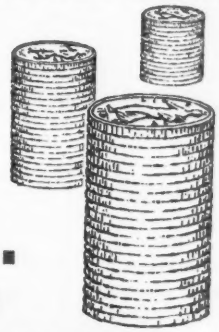
For a manufacturer, this was an ideal situation. Diuril outperformed any other diuretic on the market and was, so to speak, competition-free. Sales poured in like an avalanche. Before the first month was over, half the patients in the country on diuretic therapy were getting Diuril. Before the year was out, more than 1,000,000 diuretic patients were on the drug, and it was also being prescribed for some 500,000 hypertensive patients.

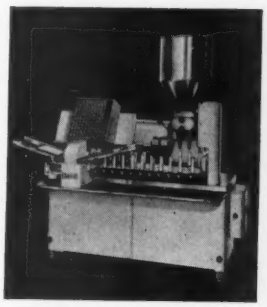
What did this mean in terms of sales volume and the total market for diuretics? Well, industry records show that some 13,000,000 prescriptions were issued for Diuril in 1958, representing nearly $20,000,000 of new business for Merck. Diuretic sales, which totaled about $7,000,000 in all of 1957 expanded to $25,000,000, with Merck accounting for 75 per cent of this business.

Merck had a full year to run with Diuril before meeting any formidable competition: In the drug business this is a long lead. Scientific papers had, of course, disclosed the exact chemical structure of chlorothiazide, and molecule manipulators were busy at work in half a dozen companies trying to effect improvements. One of the companies so engaged was Merck Sharp & Dohme. Today, complacency will get you nowhere in the pharmaceutical business.

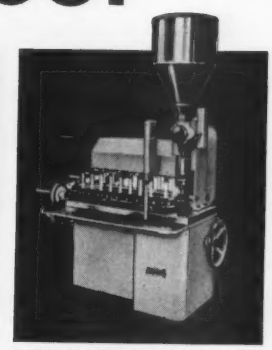
In January 1959, the analogs began to appear. The first was hydrochlorothiazide, a more potent agent than the original compound; it was marketed almost simultaneously by Merck as HydroDiuril, and by Ciba Pharmaceutical Products as Esidrix. The two companies entered a cross-licensing agreement on the new drug. As diuretic sales continued to mount, other companies entered the field with their versions. Abbott Laboratories marketed hydrochlorothiazide as

PACKAGING SAVINGS GROW...
AND
GROW...
AND
GROW...
WITH AN
ARENCO!

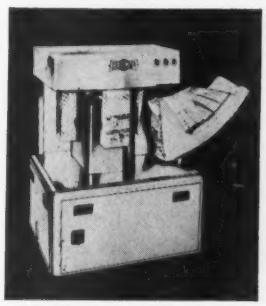




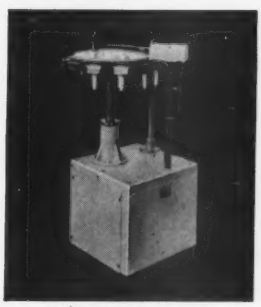
ONE OPERATOR CAN FILL AND CLOSE UP-TO-7000 TUBES AN HOUR with a GAN. Automatic feed and print registration. Discharge adaptable to virtually any carton set-up. Like GAB, fast changeover from size to size, product to product.



PACKAGE PASTES, LIQUIDS, SEMI-LIQUIDS WITH 3000-per-hour speed: get a GAB. Fully automatic. "No tube, no fill." Handles up to 1¾" x 8" on special order. Tube-cleaning, cap-tightening and blow-off standard equipment.



FEEDS, OPENS UP-TO-2100 BAGS AN HOUR AUTOMATICALLY. VUF can serve three combination weighers and portioning machines at one time. Synchronized speed controls end no-fills, double portioning. Sizes: 2½"—6¼" wide to 8⅝"—15⅛" high.



SEALS POLYETHYLENE TIGHT: GAP heat sealer is easy to hook up to GAB . . . maintains proper sealing temperatures long runs or short.

ARENCO

For details on our full line of filling, proportioning, sealing and closing equipment, write today.

ARENCO MACHINE COMPANY
INCORPORATED
25 West 43rd Street, New York 36, N. Y.

KNAPP FINE CHEMICALS PRODUCTS INC.
LODI, NEW JERSEY

- EMULSIFIERS
- DETERGENTS
- ABSORPTION BASES
- FRAGRANCES

- SCIENTIFICALLY DEVELOPED AND MANUFACTURED— SPECIFICALLY FOR APPLICATION IN COSMETIC FORMULATIONS

KNAPP FINE CHEMICALS PRODUCTS INC.
LODI, NEW JERSEY

Oretic. E. R. Squibb introduced flumethiazide as Ademol, but dropped it quickly in favor of benzydroflumethiazide, trademarked Naturetin. Bristol Laboratories marketed hydroflumethiazide as Saluron. The latest entries are trichlormethiazide, marketed by Schering Corp. as Naqua, and chlorthalidone, introduced by Geigy as Hygroton.

Combination products designed to attack specific conditions also streamed from the laboratories. Several of these, such as Esidrix-K and Naturetin-K, simply represented the addition of potassium to counteract the potassium loss in diuresis. Many of them were combinations of a diuretic with reserpine to treat hypertension. Merck itself marketed Diupres and Hydropres. Ciba, which has the leading brand of reserpine in Serpasil, tried to capitalize on this name in its combination products. Ciba marketed Serpasil-Esidrix for "the anxious hypertensive;" Singoserp-Esidrix for "mild to moderate hypertension;" Apresoline-Esidrix for "advancing hypertension;" and Ser-Ap-Es for "complicated hypertension." Abbott added its diuretic to its rauwolfia alkaloid Harmonyl, to get Oreticyl. Squibb's rauwolfia-diuretic combination turned up as Rautrax-N, harking back to the company's older antihypertensive, Raudixin. Still another combination was Upjohn's Cytran, which combined its pre-chlorothiazide diuretic Cardrase with a mild tranquilizer, Levanil, and a progestin, Provera, as an agent for the treatment of premenstrual tension.

One other new diuretic remains to be mentioned, namely G. D. Searle's Aldactone, introduced in December 1959. Synthesized by Searle's steroid chemists, this is a complicated hormone drug with an action entirely different from the other diuretics. Its chief use is in treating edema of patients with more advanced diseases—patients whose condition is often resistant to the other diuretics. In addition to being a complicated agent, Aldactone is extremely expensive. To produce one ounce, Searle must process in 24 different steps 100 pounds of raw barbasco root.

Searle's experience with diuretics serves as a dramatic example of the hazards in today's pharmaceutical business. The company itself recently noted: "After research into diuretic therapy covering seventeen years, our company in 1954 introduced the diuretic, Mincard. Although this drug represented a significant advance in diuretic therapy, it was to be replaced within less than two years by Rolicton, another Searle diuretic. Less than a year after the introduction of Rolicton, a more potent drug was introduced by another pharmaceutical company, with the result that sales of Searle's two diuretics suffered a sharp decline almost before they had really gotten started."

The "more potent drug" was, of course, Merck's Diuril. While Diuril's success hurt Searle, it is significent that this drug, unlike some others, has resulted in a positive expansion of a market. Sales of

all diuretics have multiplied five-fold since the introduction of Diuril. This is in sharp contrast to this year's tranquilizer market, where one new drug, Hoffmann-La Roche's Librium, has had a sensational acceptance—but this success has simply resulted in a redistribution of market shares; the total market has *not* been expanded.

Diuretic sales rose to $30,000,000 in 1959 and they seem now to have leveled out at this line.

How has Merck fared in the face of the competition from the refinements of chlorothiazide and the many combination products introduced since Diuril's appearance in 1958? Very well, it seems. In 1958 when it was running virtually alone, Diuril took 75 per cent of the diuretic market. In 1959, Diuril's sales slipped slightly to about $18,500,000 —good enough for 60 per cent of the market. However, its companion product HydroDiuril had sales exceeding $4,000,000, capturing nearly 15 per cent of the market. Ciba's Esidrix, the same drug as HydroDiuril, ended up with 8 per cent of the diuretic business.

Sales figures for the first six months of 1960 show that the Merck products continue to dominate the field, accounting for more than 70 per cent of the total business. Ciba and Squibb have each carved out about 10 per cent of the market. Interestingly enough, Diuril is still far ahead of other brands, despite the availability of more potent agents and the strident claims of competitors. Squibb, for example, boasts that Naturetin is "more than 100 times as potent as chlorothiazide." And Schering, in introducing Naqua this year, published in its advertisements diagrams showing that an 8 mg. tablet of Naqua had a more potent diuretic action than 50 mg. of hydrochlorothiazide and 2,000 mg. of chlorothiazide; Schering also called doctors' attention to the fact that Naqua was "most economically priced—extra benefit for the long-term patient." Prescription records for August 1960 indicate that Diuril is outselling Naqua ten to one. Diuril's advertising, featuring anatomical drawings, has hit hard on the overwhelming acceptance of the drug by the medical profession. Current ads say:

"In edema or hypertension, more doctors are prescribing—more patients are receiving the benefits of —more clinical evidence exists for—DIURIL than for any other diuretic-hypertensive. Diuril is unique. There is no other brand of chlorothiazide."

Diuril's success has also rubbed off on Merck's combination products. The leading reserpine-diuretic combinations, by a wide margin, are Merck's Diupres and Hydropres. Ciba's strength in the reserpine market failed in this case to overcome Merck's initial edge in diuretics. Nevertheless, Ciba has fought a fairly effective rear-guard action in the diuretic market. Ciba already had a major stake in the hypertensive market and, once it was discovered that chlorothiazide not only was a good diuretic but also

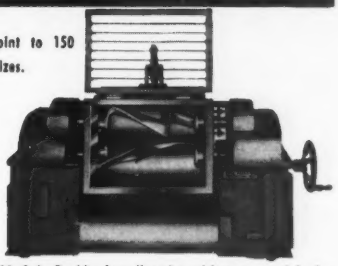
Ross

Leading mfrs. of

MIXING AND GRINDING EQUIPMENT

for over 90 years

• 1 pint to 150 gal. sizes.



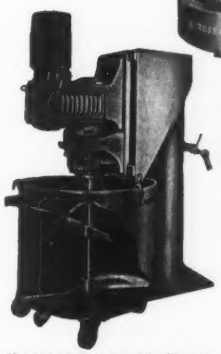
#41L–10 Gal. Double Arm Kneader with two speed brake motor. Jacketed trough and motor operated lift optional.

• 4½ x 10, 6 x 14, 9 x 24, 12 x 30, 14 x 32, 16 x 40" sizes.

#52TC–14" x 32" High Speed Three Roller Mill. Hydraulic adjustment and pressure recording gauges optional.

#30C–50 Gal. Heavy Duty Change Can Mixer. Adjustable outer scraper, cover with charging port, and gates on cans optional.

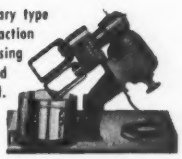
• 8, 16, 20, 50 and 60 gal. sizes.



#130H–250 Gal. Change Tank Mixer with hydraulic raising and lowering and variable speed motor. Various type stirrers and high speed impellers optional.

• 80, 150 and 250 gal. sizes.

#130EL–1 Gal. Double Planetary type Change Can Mixer with shearing action stirrers, and variable speed reversing type motor. Jacketed cans and portable trucks for cans optional.



• 1, 2, 3, 4, 6, 15, 25, 50, 65, 85, 110 and 150 gal. sizes.

Also Dry Crushing and Pulverizing Mills, Hopper Mills, High Speed Dissolvers or Dispersers, and Mixers of all types for dry, liquid, paste, or heavy paste materials.

Write for complete information!

CHARLES ROSS & SON COMPANY, INC.

148-156 (D) Classon Avenue
Brooklyn 5, New York

Some
imitate...
FRIES & FRIES
INNOVATES
With aerosol
fragrances that give
your product the
"competitive edge".
The fragrance of your aerosol product requires experienced and specialized attention. Whether a cologne or insecticide, shave cream, suntan lotion or hair spray . . . or any of the myriad items now sold in aerosol containers . . . pressurized packaging demands perfumes and masking agents tailored to its specific requirements. The FRIES & FRIES laboratories are equipped and staffed to give your aerosol product this indispensable ingredient . . . "personalized perfumery" . . . developed solely for your needs. For a new experience in aerosol perfume practice . . . call on FRIES & FRIES.
FRIES & FRIES
CINCINNATI
CINCINNATI 110 East 70th St.
NEW YORK 418 East 91st St.

supplemented reserpine in the treatment of hypertension, Ciba's most effective defense was an offensive of its own in the diuretic market. Here again we see the mechanics of battle strategy employed in drug marketing.

Meanwhile, new diuretics continue to come from the laboratories. A. H. Robins Co. has just entered the picture with benzthiazide, marketed as NaClex. Abbott has introduced Ureaphil, a powdered form of urea to be reconstituted with dextrose for injection in cases of cerebral edema and edema following surgery, burns, and trauma. Moreover, Merck has now combined hydrochlorthiazide (HydroDiuril) with meprobamate to produce Cyclex, a diuretic agent for treatment of premenstrual tension.

Diuril has certainly had a salutary effect on Merck's total business. The company's net income soared from $23,000,000 in 1957 to nearly $30,000,000 in 1959. In 1957, Merck's prescription volume placed it thirteenth among all pharmaceutical producers, with a little more than 3 per cent of all prescriptions. In 1959, Merck was in fifth place with about 6 per cent of all prescriptions. Not all of this is Diuril, of course; Decadron, the company's new steroid for arthritic sufferers, made an important contribution in 1959. However, Diuril has been important: In 1958, it accounted for nearly half of *all* Merck's prescription volume; and it was still accounting for 35 per cent last year.

Diuril has had another significant effect. It has turned Merck into a powerful advertiser to the medical profession. In 1959, the company spent $4,700,000 in direct mail and medical journal advertising, an amount exceeding the total spent by any other pharmaceutical company in these two media.

MODERN OXIDATION HAIR DYES

(*Continued from page 765*)

preliminary test according to accompanying directions should be first made. This product must not be used for dyeing the eyebrows or eyelashes; to do so may cause blindness."

FORMULA NO. 5—ASH BLONDE

p-Phenylenediamine	0.60%
o-Aminophenol	0.10
p-Aminophenol	0.01
p-Aminodiphenylamine	0.03
4-Nitro-1,2-diaminobenzene	0.30
Pyrogallol	0.70
Resorcinol	0.20
Hydroquinone	0.10
Ammonium hydroxide	q.s.
Sodium sulfite	q.s.
Dye base, to make	100.0%

FORMULA NO. 6—GOLDEN BLONDE

Pyrocatechol	0.25%
p-Phenylenediamine	0.30
o-Aminophenol	0.15
p-Methylaminophenol sulphate	0.50

Resorcinol	0.25
Pyrogallol	0.30
p-Aminodiphenylamine	0.15
Ammonium hydroxide	q.s.
Sodium sulfite	q.s.
Dye base, to make	100.0%

FORMULA NO. 7—LIGHT BLONDE

p-Phenylenediamine	0.20%
o-Aminophenol	0.01
1,5-Dihydroxynaphthalene	0.20
Pyrocatechol	0.17
p-Aminophenol	0.15
Hydroquinone	0.01
Ammonium hydroxide	q.s.
Sodium sulfite	q.s.
Dye base, to make	100.0%

FORMULA NO. 8—STEEL GRAY

p-Phenylenediamine	0.50%
2,4-Diaminoanisole	0.70
1,5-Dihydroxynaphthalene	0.50
p-Methylaminophenol sulfate	0.30
Pyrogallol	3.55
Ammonium hydroxide	q.s.
Sodium sulfite	q.s.
Dye base, to make	100.0%

The patch test instructions read:

"With soap and water, wash an area of the skin inside the bend of the elbow or behind the ear and extending partly into the hairline. Dry without rubbing. Prepare the test mixture by mixing several drops of the dye solution with the proper proportionate amount of developer. Then with a cotton tipped applicator apply the mixture to an area of the test site no smaller than a twenty-five cent piece. Permit this test area to dry and leave uncovered and undisturbed for twenty-four hours. If at the end of this time there is no burning, itching, swelling, irritation, eruption or other abnormal reaction, the dye may be safely used on the hair."

Oxidation dyes today provide the best method of coloring the hair safely and effectively. There is a broad area for investigative studies and a ready market for superior new products.

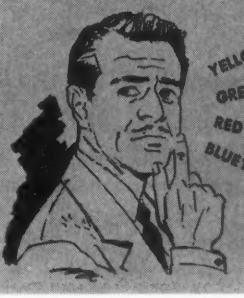
PRESSURE PACKAGING

(*Continued from page 771*)

might cite as an example the adaptation of stainless steel aerosol containers for fragrance products and pharmaceutical sprays. Our experience has shown that this type of container is indeed applicable for these uses, but we also found that one basic requirement, if not attended to, could cause instability of the finished product. In the production of stainless steel containers, certain drawing oils are used; if a residue of these oils remains on the inner surface of the container, a change in the fragrance can and often does occur. These residual oils are normally alkaline in *p*H. This condition may also affect pharmaceutical and related products where the *p*H is a primary factor. To avoid such difficulties, we have found that it is best to clean ultrasonically the containers destined

COLOR PROBLEM?

FREE SAMPLES FROM PYLAM SOLVE YOUR PROBLEM



HIGHEST GRADE COLORS FOR:

SOAPS: DETERGENTS • SHAMPOOS • WATERLESS HAND CLEANERS • ANTISEPTICS • SURGICAL SCRUBS

COSMETICS: FACE CREAMS • COLOR RINSES AND DYES • DEODORANTS • ANTI-PERSPIRANTS • HAND LOTIONS • BABY LOTIONS AND POWDERS • SKIN CONDITIONERS • ANTISEPTIC CREAMS • SHAVE CREAMS • AFTERSHAVE LOTIONS • SHAMPOOS • HAIR DRESSINGS • DUSTING POWDERS • SUN-TAN OILS • COLOGNES AND TOILET WATERS

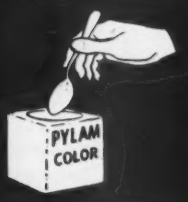
PHARMACEUTICALS: LINIMENT • PROTECTIVE HAND CREAMS • CORN OINTMENTS • DIAPER RASH PREPARATIONS • ANTISEPTIC OINTMENTS • LIP POMADES • AEROSOL FOOT SPRAYS • MENTHOL LOTIONS AND OINTMENTS • ACNE LOTIONS

HERE ARE THE BENEFITS YOU GET WITH COLORS FROM PYLAM:

• Widest choice of colors and dyes • Less-than-drum-size orders, a Pylam specialty • Color-matching lab service free • Guaranteed quality • Faster delivery • 43 years experience

PYLAM

PRODUCTS COMPANY, INC.
Manufacturer of Colors
799 Greenwich St., N Y 14, N.Y.
Phone: CHelsea 3-1687



WHEN YOU WISH TO DINE ELEGANTLY
AND WHEN YOU ENTERTAIN

575 Park Avenue (at 63rd St.) New York

Now Open Seven Days a Week

For lunch and dinner reservations: Michel, TEmpleton 8-6490

Facilities for sales meetings, presentations and social functions.

gane's

DEHYDROACETATE, SODIUM

Fine Medicinal Chemicals

Alphenal	Allylbarbituric Acid
Amobarbital	Aprobarbital
Barbital	Butabarbital
Pentobarbital	Mephobarbital
Phenobarbital	Secobarbital

Diallylbarbituric Acid
also, the SALTS and OTHERS

WITH EVERY POUND . . . MORE GANE'S *in* QUALITY

Manufacturer of Fine Medicinal Chemicals
GANE'S CHEMICAL WORKS, INC.
535 Fifth Avenue, New York 17, N. Y. • YUkon 6-5780

for perfume and pharmaceutical applications, to remove all traces of foreign matter. Where the specific product requires it, electroplating of the stainless steel with different metals may be necessary. It is also necessary to determine whether the formulated product—particularly fragrances and pharmaceuticals—will have a plasticizing effect on the gasketing material used in the valve assembly. We have found neoprene gaskets to be suitable for most fragrant products.

The selection of the various components of the aerosol container is completely dependent upon the specific formulation. Compatibility studies are essential to determine what effect, if any, the pressurized product will have on the various parts of the containers. I must emphasize again the importance of the different coatings now being used to excellent advantage. These are especially useful in the aluminum aerosols where the presence of alcohol and other materials may have an effect on the container.

Even after the selection of the proper container, it is necessary to check the equipment used in filling, since it may cause additional problems. Especially when fragrance products are involved, the presence of a brass nozzle or coupling could have a catalytic effect, causing complete odor deterioration of the product after only a short shelf life.

The propellant is a vital part of the pressure package and must be selected with great care. At the present time, propellants used include the hydrocarbons, fluorocarbons and the compressed gases. The type of propellant selected is usually dependent on the formulation to be pressurized as well as on patent considerations and, in some instances, cost.

The propellant can serve principally as the medium through which the product is evacuated from the container, or it can become a functional part of the formulation. In such products as perfumes, colognes, room sprays, insecticides, and inhalants, propellants act in the former function and serve also to produce a definite type of spray, depending on the quantity of propellant and the pressure. The propellant in these products is, therefore, separately identified from the formulation, and the question of compatibility becomes especially important. The propellant or combination of propellants to be used depends on the formulation to be evacuated. If, for example, moisture is present, it is necessary to select propellants that are not subject to hydrolysis in order to prevent the formation of acids that can affect the formulation and cause corrosion.

In foam products, the propellant not only acts as the evacuating medium, but also becomes an intrinsic part of the formulation. Its selection, in these cases, is completely governed by its stability to the product and by the pressures involved. The propellant is solubilized in certain of the formulation components and the product foams upon evacuation. This foaming action is caused by the boiling off of the

propellant. The concentration of propellant affects the type of foam obtained. An over-pressurized product results in a foam that is tight and rubbery. Products that are under-pressurized have little foam. It is, therefore, necessary to determine by experimentation the type and concentration of propellant that will achieve the desired foam.

In some instances, aerosol emulsions and creams are packaged with compressed gases such as nitrogen, nitrous oxide and carbon dioxide. This is done to obtain a product with the same basic physical characteristics as the conventionally packaged type. The use of certain compressed gases prevents foaming.

The compressed gases create other problems that must be considered before these gases are used as propllants. Product viscosity must be taken into consideration. A product that is too viscous may cause cavitation, with loss of all or a good portion of the gas. This would result in an inoperative container.

Diminishing pressure is another problem raised by using compressed gases. There is a decrease in pressure in direct relationship to the amount of product used. This may have an affect on the product's spray characteristics and physical properties.

At this point, a check list of what is required in the preparation of an aerosol formulation is in order. The factors mentioned should be given careful consideration to achieve a saleable product.

1. *Viscosity*. The viscosity of the product is important to insure proper flowability. The reaction of the product to lower temperatures must be carefully considered.

2. *Propellants*. The propellant or combination of propellants requires careful selection to insure complete stability of the product. The formulation should be so created that it remains stable over a range of *p*H and, if possible, an inhibitor should be added to the formulation. In foam products such as shampoos and shave creams, small amounts of free triethanolamine have an inhibiting effect that allows for better stability of the product.

3. *Containers*. Component parts of the container must be chosen to meet the needs of the product to be packaged. Many valve manufacturers maintain helpful use data on their products. If such information is not available, we strongly recommend that the component parts of the container be tested to insure complete compatibility with the rest of the aerosol package.

It is also important to ascertain the shelf life of the container. Some data can be obtained by accelerated testing. However, nothing can altogether replace normal shelf life conditions.

There are numerous advantages in aerosol packaging, one of them being the maintenance of sterility during normal shelf life of pharmaceutical products, in particular. Aerosol snows could not be achieved in any other form of packaging, and the same could be said of the lathering of shave creams and lotions,

never before possible!

THIN LAYER CHROMATOGRAPHY

introducing the new "TL" method after Stahl

A major innovation in Adsorption Chromatography.

"TL" is the abbreviation for the Thin Layer of adsorbent (specially prepared Silica Gel G) which constitutes the "open micro column" (250 μ thickness).

With "TL" rapid chromatographic separation on a MICRO scale of many compounds, especially LIPIDS, barbiturates, alkaloids, stereoids, and others is now feasible. Preparation for a test is fast and simple. Required sample volume is from 1 to 10 mm^3 quantities from 0.1 to 500 gamma. Evaluation is by radioactive tracing methods or staining by spray reagents. The latter can be highly aggressive—permitting the use of reagents not suited to other methods of chromatography.

Major applications for "TL" are in

Pharmacy
Toxicology
Biochemistry
Clinical Chemistry
Organic (fat) Chemistry

For full information, bibliography, and prices request bulletin "TL".

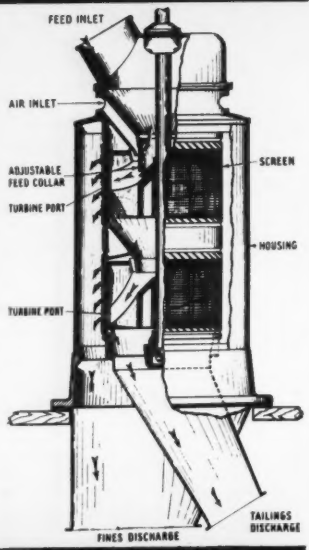
BRINKMANN INSTRUMENTS, INC.
115 Cutter Mill Road, Great Neck, N.Y.
Philadelphia • Cleveland • Houston • Miami • Menlo Park, Cal.

ENORMOUS SIFTING CAPACITY
in MINIMUM FLOOR SPACE

abbé
TURBO SIFTER

produces clean, fast separation up to 10,000 lbs. per hr., in a floor space of only 6 sq. ft. Material, automatically fed at constant speed to the high speed turbine, is thrown through the vertical screens with tremendous centrifugal force. Operation is quiet, dust-free and non-contaminating. SECURITY SIFTING—Used by hundreds of cosmetic, food and chemical plants to remove foreign matter before final packaging.

Catalog 75 gives complete story on the Abbé Turbo Sifter.



abbe ENGINEERING COMPANY
620G Graybar Bldg., New York 17, N. Y.
Designers and Manufacturers of
Ball, Pebble and Jar Mills · Pulverizers · Sifters · Cutters · Mixers

PRIVATE FORMULA
Tablets and Capsules
BY THE THOUSANDS—
OR BY THE MILLIONS

Over 46 years' experience enables us to render you prompt, accurate, and dependable service in the manufacture of your tablets and hard shell capsules. Our central location expedites delivery to any point in the country. Furnished bulk or packaged.

Vitamin Tablets and Capsules—Tablets—Ointments—Powders

We Invite Your Inquiries

Standard Pharmacal Co.
OF CHICAGO
PRIVATE FORMULA MANUFACTURERS
M. F. Charley, President
847-853 W. JACKSON BLVD. CHICAGO 7, ILL.

as well as the quick-breaking foam of pharmaceutical products.

At the present time, much research into the further development of pharmaceutical aerosols is being conducted; this area has excellent potential for the pressure package. The standardization of aerosol components, which we feel will be achieved in the near future, will certainly result in a much wider use of the aerosol than was heretofore anticipated.

MEN'S FRAGRANCES

(*Continued from page 761*)

EAU DE BERLIN

10	Coumarin
10	Marjoram
15	Coriander
25	Cardamon
30	Geranium-sur-roses
30	Lemon
40	Rose otto
75	Petitgrain
150	Oil Chinese anise
500	Bergamot oil

This Berlin fragrance is more attractive than its contents would indicate. It has an odor resembling the liqueur Anisette with a lifting freshness. We must admit that it is an "odd ball" item, and that its acceptance in the United States at that time is a miracle.

The so-called Hungary Water enjoyed more popularity in Europe than in America. It was compounded along these lines.

HUNGARY WATER

100	Rosemary
10	Bitter orange
40	French verbena
10	Lemon
5	Oil limes
2	Rose otto
2	Orange flower
1	Peppermint

As can be readily seen, it is primarily a "bouqueted" rosemary type, lifted with citrus notes and shaded with rose otto and orange flower. Again, this is more attractive than its formula would indicate. Good, unsophisticated Spanish rosemary is a product as beautiful in its class as is lavender Barreme in its group.

From this point on, the style of the classic cologne became obscured by its blending with a multiplicity of admixtures. Today the word "cologne" generally means a diluted version of a fragrance oil "pepped up" with an assortment of citrus and allied effects. This interpretation is specially applicable to feminine products.

Now let us see how the classic cologne continues today. A number of new chemicals have appeared on the market which can add striking nuances to this old-time favorite. In general, these newcomers create brilliance and depth.

(*Continued on page 853*)

COMING EVENTS . . . . .

DECEMBER

26-31 American Assn. for The Advancement of Science, annual meeting, N. Y. C. (R. L. Taylor, A.A.A.S., 1515 Massachusetts Ave., N.W., Washington 5, D.C.)

27-30 American Assn. for the Advancement of Science, Pharmacy Section Meeting, Hotel Roosevelt, N. Y. C. (John E. Christian, Secretary, Pharmacy Section, School of Pharmacy, Purdue University, Lafayette, Ind.)

JANUARY 1961

16-19 Instrument Society of America, Winter-instrument-automation conference, St. Louis, Mo. (W. H. Kushnick, 313 Sixth Ave., Pittsburgh 22, Penna.)

23-26 Plant Maintenance & Engineering Conference and Show, International Amphitheatre and the Palmer House, Chicago, Ill. (Clapp & Poliak, Inc., 341 Madison Ave., N. Y. C.)

FEBRUARY 1961

3 Parenteral Drug Assn., scientific meeting (evening), Statler-Hilton Hotel, N. Y. C. (P.D.A. 1420 Snyder Ave., Philadelphia 45, Penna.)

8-10 Pharmaceutical Manufacturers Assn., Law Section, Boca Raton Club, Boca Raton, Fla. (Dr. Karl Bambach—see above.)

13-15 Pharmaceutical Manufacturers Assn., central regional meeting, Edgewater Beach Hotel, Chicago, Ill. (Dr. J. O'Neill Closs, P.M.A., 1411 K Street, Washington 5, D. C.)

20-21 Pharmaceutical Manufacturers Assn., western regional meeting, Ambassador Hotel, Los Angeles, Calif. (Dr. J. O'Neill Closs—see above.)

28 Wayne State University College of Pharmacy and the Michigan Branch, American Pharmaceutical Assn., pharmacy seminar, McGregor Memorial Conference Center, Detroit, Mich., (Dr. Wm. L. Blockstein, College of Pharmacy, Wayne State Univ., Detroit, Mich.)

MARCH 1961

1-3 Pharmaceutical Manufacturers Assn., Medical Section, Ponte Verdra Club, Ponte Verdra, Fla. (Dr. Karl Bambach —see above.)

8-10 Pharmaceutical Manufacturers Assn., Medical Section, Ponte Vedra Club, Ponte Vedra Beach, Fla. (Dr. Karl Bambach—see above.)

17 St. John's University College of Pharmacy, annual pharmacy congress, University Campus, Jamaica, L. I. (Annual Pharmacy Congress, St. John's University, Jamaica 32, N. Y.)

20-31 Purdue Univ. Industrial Packaging Institute, industrial packaging short course, Purdue Univ., Lafayette, Ind. (Mark E. Ocker, Memorial Center, P.U., Lafayette, Ind.)

21-30 American Chemical Society, spring meeting, St. Louis, Mo. (A. T. Winstead, A.C.S., 1155 Sixteenth St., N.W., Washington 6, D. C.)

APRIL 1961

21 Parenteral Drug Assn., scientific meeting (all-day session) Edgewater Beach Hotel, Chicago, Ill. (P.D.A., 1420 Snyder Ave., Philadelphia 45, Penna.)

23-27 Society of American Bacteriologists, annual meeting, Morrisson Hotel, Chicago, Ill., preceded by a Symposium on Marine Microbiology (April 20-22) co-spon-

USE JEFFERSON U. S. P. PROPYLENE GLYCOL

Preferred in Many Pharmaceutical and Cosmetic Formulations

U.S.P. grade propylene glycol is finding applications in an ever-increasing variety of pharmaceuticals and cosmetics as a solvent, carrier, emollient, preservative and humectant. Its safety for ingestion and its wide scope of solubilizing properties make propylene glycol widely accepted for pharmaceuticals. In cosmetics, its excellent solvent properties and soothing qualities in certain lotions and creams permit a less expensive product, and very often a superior product.

For prompt deliveries and helpful technical services, write to Jefferson Chemical Company, Inc., 1121 Walker Avenue, P. O. Box 303, Houston 1, Texas.

JEFFERSON CHEMICALS

Houston • New York • Chicago • Cleveland
Charlotte • Los Angeles

P·L·C

manufacturers

of

LIPSTICKS'
FACE POWDER
DRY & CREME
ROUGES
MASCARAS
&
LIQUID & CREME
FOUNDATIONS
LOTIONS
CREMES

Inquiries Invited

Private **L**abel **C**osmetics
Co., Inc.

373 East 148th St., New York 55, N.Y.
Phone: CYpress 2-3322

sored by the Office of Naval Research and the S.A.B. (J. C. McCaffrey, Ill. Dept. of Public Health, 1800 W. Fillmore St., Chicago 12, Ill.)

MAY 1961

2-9 International Packaging Exhibition, Amsterdam, Holland (Verpakkingsbeurn, Tesselschadestraat 5, Amsterdam, Holland)

9-11 Toilet Goods Assn., convention, and Scientific Section meeting (May 11), Waldorf-Astoria Hotel, N. Y. C. (Kathryn Fitzpatrick, T.G.A., 1270 Avenue of the Americas, N. Y. C. 20)

15-17 Chemical Specialties Manufacturers Assn., annual meeting, Mayflower Hotel, Washington, D. C. (C.S.M.A., 50 E. 41st St., N. Y. C. 17)

JUNE 1961

4-7 Annual National Industrial Pharmaceutical Research Conference, King's Gateway, Land O' Lakes, Wisconsin, Extension Services in Pharmacy, University of Wisconsin (Richard S. Strommen, E.S.P., 301 Chemistry Bldg., University of Wisconsin, Madison, Wisc.)

5-9 Society of Plastics Industry, National Plastics Exposition and annual national conference, Coliseum and Hotel Commodore, N. Y. C. (S.P.I., 250 Park Ave., N. Y. C. 17)

23 Parenteral Drug Assn., scientific meeting (afternoon and evening), Warwick Hotel, Philadelphia, Penna. (P.D.A. 1420 Snyder Ave., Philadelphia 45, Penna.)

AUGUST 1961

10-16 International Congress of Biochemistry, Moscow, U.S.S.R. (N. W. Sissakian, Leninsky prospekt 33, Moscow, B-71, U.S.S.R.)

SEPTEMBER 1961

3-8 American Chemical Society, annual fall meeting, Chicago, Ill. (A.C.S., 1155 Sixteenth St., N.W., Washington 6, D.C.)

5-8 National Chemical Exposition, concurrent with the fall national meeting of the American Chemical Society, The Chicago Ampitheater, Chicago, Ill.

OCTOBER 1961

18-20 Packaging Institute, annual national packaging forum, Biltmore Hotel, N. Y. C. (Chas. A. Leld, P.I., Inc., 342 Madison Ave., N. Y. C. 17)

NOVEMBER 1961

1-3 Parenteral Drug Assn., annual convention, Statler-Hilton Hotel, N. Y. C. (P.D.A., 1420 Snyder Ave., Philadelphia 45, Penna.)

7-10 Packaging Machinery Manufacturers Institute Show, Cobo Hall, Detroit, Mich. (Hanson & Shea, Inc., One Gateway Center, Pittsburgh 22, Penna.)

29 Toilet Goods Assn., Scientific Section meeting, Waldorf-Astoria Hotel, N.Y.C. (T.G.A., 1270 Avenue of the Americas, N.Y.C. 20)

DECEMBER 1961

4-6 Chemical Specialties Manufacturers Assn., annual meeting, Roosevelt Hotel, N.Y.C. (C.S.M.A., 50 East 41st St, N.Y.C. 17)

MARCH 1962

20-29 American Chemical Society, annual spring meeting, Washington, D.C. (A.C.S., 1155 Sixteenth St. N.W., Washington 6, D.C.) ●

(Continued from page 850)

It is interesting to note that the fundamental work on improving the classic cologne has been done in Germany, the birthplace of the original product.

For our illustration of the modernized classic material, we show the following formulation, utilizing a series of chemical specialties from the famous house of Haarman and Reimer.

A MODERNIZED COLOGNE

5	H & R Jasmaketon 10% in DEP (Verona)
5	H & R Mugoflor (Verona)
5	H & R Decylaldehyde acetal (Verona)
10	Methyl naphthyl ketone
10	Geranyl acetate
15	Linalyl acetate
15	H & R Agrumen aldehyde "N" (Verona)
15	H & R Verdural "F" 10% in DEP (Verona)
20	H & R Jasmin 6066H Reconstitue (Verona)
25	Lavender 40/42
30	Rosemary
40	H & R Hesperidol H/5 (Verona)
60	H & R Neroflor Extra (Verona)
125	Oil lemon, Italian
150	Petitgrain, S. A.
160	Orange oil, Guinea (Robertet)
350	Bergamot Hesperides Extra (Chiris)

This formula shows that the essential bergamot, orange, lemon, lavender, rosemary structure is still preserved.

To brighten these citrus notes, the modern chemicals, Hesperidol, Agrumen aldehyde N are introduced. The Hesperidol has a powerful, level fragrance recalling the peel of a freshly picked orange, coupled with a note suggesting the brightness of bergamot. The Agruman aldehyde re-enforces the orange oil in a manner suggesting extra fine terpeneless oil of Dominican orange.

The Verdural adds a contrasting touch of a petal greenness, suggesting neroli petals. The decylaldehyde acetal emphasizes this effect with a contrasting green note.

Jasmin H shaded with Jasmaktone produces a flowery richness of great depth, which recalls jasmin absolute.

One of the principal innovations in this modern version of the classic cologne has been the emphasis on brilliant neroli effects through the liberal use of petitgrain, methyl naphthyl ketone, and especially the Neroflor Extra.

The Neroflor Extra is a very novel chemical, lively and flowery in the tradition of neroli but with a bouquet suggesting the exquisite floral of sweet pea, tuberose, and jasmin. It adds an inimitable showiness to the total composition.

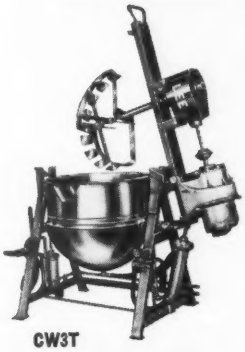
Mugoflor is a material with some resemblance to hydroxycitronellal in that it shows a similar generalized floral "halo." But it is so much more sparkling and flowery that there the resemblance ends. Although it is used in this formula in a small quantity, its powerful floral note is clearly discernible.

For more than a century and a half the classic cologne theme (with its many fashion variations) has enjoyed a great popularity with American men.

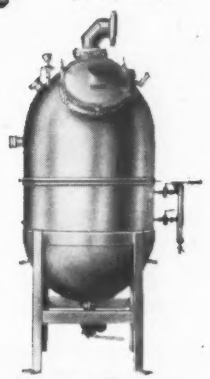
THE *Specialist* IN CUSTOM-MADE STAINLESS VESSELS

IS LEE

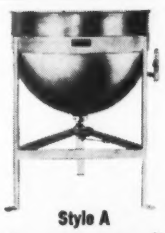
Whether custom-made for a special need, or a standard type and size—you are assured of *economy plus quality.*



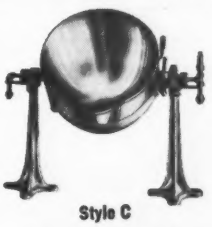
CW3T
Center-line Scraper Agitator Kettle
25 to 1500 gal.



Pressure or Vacuum Reactors
to 500 gal.



Style A
Two-thirds Jacketed
2 to 1500 gal.



Style C
Two-thirds Jacketed
2 to 100 gal.

Style CW
Two-thirds Jacketed
80 to 300 gal.

Also
Special Designs—Large or Small to meet specific process requirements. Vacuum and Pressure Equipment. Process and Storage Tanks.

Write
for a proposal on *Special Vessels* for your needs.

LEE
METAL PRODUCTS CO., INC.
408 PINE STREET, PHILIPSBURG, PA.
LEE KETTLES ARE MADE TO A.S.M.E. CODE

You're sure of better-performing
shellac when you specify . . .

GRP

backed by 136 years of experience and research!

HARMLESS LAC GLAZES for Enteric and Other Pharmaceutical Protective Coatings with Rapid Solvent Release

Rigidly controlled production assures highest quality and uniformity to meet all requirements of U. S. Food, Drug & Cosmetics Act as extended.

Free from harmful impurities.

Regular and Refined (Dewaxed) Shellac packed in 50 lb. bags. Alcohol solutions of both in required solids in new, specially-lined steel non-returnable 55 gal. drums or 5 gal. pails.

IMPORTANT! Only FDA-approved containers and linings are used to insure maximum purity of GRP products.

Our technical experts backed by research facilities are available to assist you on special projects.

GILLESPIE-ROGERS-PYATT CO., INC.

Write for our Technical Bulletin V-158

Office: 75 West Street, New York 6, N. Y.
Plant and Laboratory: Jersey City, N. J.

Sales Representatives and Warehouse Stocks in Principal Cities throughout United States

But, like a piece of popular music, this theme is running out because of overplaying. Even its modification and "take-offs" have trouble in building a sales volume. It is an exhausted theme fast becoming a memory of the trolley-car era to this jet age.

Frankly, the selection of a predominantly classic cologne for a men's fragrance is a poor choice today. The past acceptance of the classic type by men appears to have been a matter of tradition rather than genuine artistry. By modern standards it is not well balanced either technically or artistically.

One of the most difficult problems in making a modern colonge is to keep the citrus notes (orange, lemon, lime etc.) in balance with the various elements used to contrast this same group. Unless these citrus notes are held in check and kept well-blended, the finished cologne will take on a startling resemblance to a glass of ginger ale, rather than an esthetic fragrance.

This is not a facetious comment. Ginger ale flavor is built on a citrus blend, ginger and other extractives, plus traces of florals such as rose and jasmin.

For flavor effect the citrus notes must be predominant. Thus an "overloaded" cologne actually does bear a resemblance to a ginger ale flavor. This is especially true when the cologne contains vetyvert and aldehydes, for then, even the gingery effect is simulated.

To complicate this situation even further, quite a number of people are unable to evaluate accurately the citrus effect in a cologne. Apparently they become so fascinated by the so-called freshness of the citrus oils that they tend to overuse them.

A fragrance recently put on the market was so heavily loaded with citrus tones and aldehydes that it sparkled like a glass of soda pop. It smelled more like something to drink than to wear. Needless to say it failed.

Trying to create original colognes is hard, but we would like to show an interesting "forest" modifier for the modernized classic cologne previously mentioned.

FOREST MODIFIER

1	Aldehyde C-12 MNA 10% in DEP
2	Aldehyde C-12 Lauric 10% in DEP
2	TEPYL acetate
2	Methyl ionone Extra
3	Linalool (Roche)
3	Linalyl acetate (Roche)
3	Phenylethyl propionate
4	Vetyvert acetate
4	Oil lemon
5	Dimethyl benzyl carbinyl acetate
6	Oil galbanum 10% in DEP
6	Lilial (Givaudan) 10% in DEP
8	Sandalwood E. I.
10	Vetyvert Bourbon
10	Bergamot Hesperides Extra (Chiris)
10	Oak Moss PC Std. (Perf. Assoc.)

This modifier is almost a finished perfume in itself. Consequently, it does not flat out the fragrance into which it may be introduced—it is a contribution, not an addition to a formula. It produces a very

distinct green forest note, fresh, yet blended with precious wood and sweetness. It does not blatantly show its bergamot content. When it is used with an aldehyde bouquet, it creates a fascinating shading.

The skillful use of the so-called Russian Leather compounds produce striking nuances, difficult for matchers to copy. This style of compound should be based on methyl and ethyl salicylates carefully sweetened with coumarin and vanillin, blended with traditional florals of rose and jasmin, and given its leather note with a careful use of castoreum.

There are several unusual modern specialty chemicals that deserve more attention in colognes than is currently being given them. H & R Jasminal Extra has a curiously floral greenness that harmonizes well with any cologne type. It adds a forest-flower touch that builds up the lift. Rosottone (Penick) is another product that should be looked at. It adds a great brilliance, even in traces, when associated with geranium bourbon. When used alone in the classic cologne, it puts an entirely new face on the odor. It is most intriguing in the Florida Water class. Roselium (Givaudan) is another sadly overlooked product. It gives a fascinating petal shading to elaborate fantasy cologne bouquets. In my own cologne research, both Rosottone and Roselium have proved to be superb novelties.

Fougere

The perfumer recognizes a fragrance group called lavender-fougere-chypre, LFC for short. The familiar lavender becomes a fougere, and the latter in turn can be converted into the chypre.

Fougere is an old-time fragrance of European origin. Its popularity zoomed about the time of Oscar Wilde, when it was developed to preserve the excellence of the lavender, but it escaped the Wilde curse.

Fougere is French for "fern." In its original form it was keyed upon a blend of oak moss and patchouly, sometimes with vetyvert. Through some strange quirk of fate, it became transformed into a blend of lavender and the classic cologne shaded with the aforementioned oakmoss-patchouly-vetyvert, and other materials. Actually, a modern fougere is not especially true to its namesake the fern. It has become a traditional fantasy rather than an accurate representation. The following formula will demonstrate its general structure.

GOOD QUALITY FOUGERE

1	Carrot seed oil
2	Oil estragon
3	Sandalwood E. I.
4	Oakmoss PC Std. (Perf. Assoc.)
5	Vetyverol
5	Patchouly
8	Geranium Bourbon
8	Citronellol
10	Ionone AB
10	Amyl salicylate
15	Lavender 40/42
15	Coumarin
35	Bergamot

Styrax Liquid Essence*
NOVILLE

The natural note found in cinnamic alcohol made from styrax... We recommend: 1 part Styrax L.E. Noville to 9 parts ordinary cinnamic alcohol = more stability plus fragrance.

Noville
ESSENTIAL OIL COMPANY, INC.
NORTH BERGEN, N. J.

* produced by
NICKSTADT-MOELLER, INC. RIDGEFIELD, N. J.
AN ASSOCIATED COMPANY

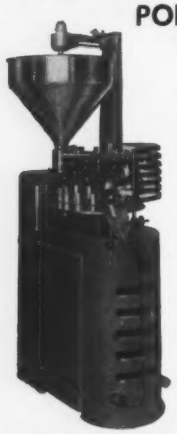
KALIX-DUPUY

AUTOMATIC TUBE FILLING, CLOSING & CRIMPING MACHINE

AVAILABLE with INTERCHANGEABLE HEADS for SEALING POLYETHYLENE & METAL TUBES

Simplicity ★ Lower Price

Immediate Delivery!



★ 120 Gross Daily—One Operator.
★ 15 Minutes to Change Size. Very low Change cost.
★ Quickly Cleaned — No Hose — Fills Tubes, Jars or Cans.
★ Accurate Fill—No drip—No smearing—No air.
★ Handles all metal and Polyethylene tubes. Model RV-7 from ⅜" to 1½" diam. x 7½" high. RV-10 from 1" to 2½" diam. x 12" high.
★ Two-fold—Three-fold or Quadruple fold on RV-7. Two-fold or Three-fold on RV-10.
★ No tube—no fill. Coding jaws—Automatic Ejector.
★ Cap Tightener.
★ Stainless Steel Contact Parts.
★ Fully guaranteed — Replacement parts and service readily available.

WRITE FOR DESCRIPTIVE FOLDER AND PRICES

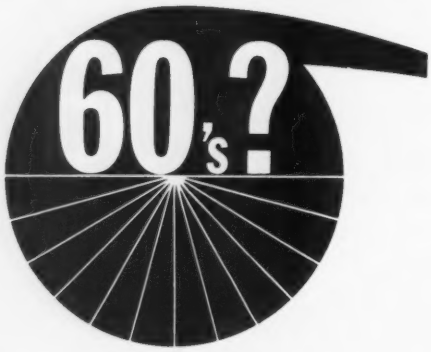
COMPLETE SERVICE and PARTS FROM STOCK

HARING EQUIPMENT Corp.

EXCLUSIVE KALIX-DUPUY DISTRIBUTOR

91-93 NEW JERSEY RAILROAD AVE.
NEWARK 5, N. J. • MArket 2-3103

Are your products up to the



Today's Ritter products *are years ahead... assuring your* future *in today's markets.* Your inquiries invited.

F. RITTER & COMPANY

Ritter International

GENERAL OFFICES:
4001 Goodwin Ave., Los Angeles 39, Calif.
Plants in Los Angeles, Chicago, Ill., and Anaheim, California.

BRANCHES THROUGHOUT THE WORLD

The fougere fragrance has one unfortunate characteristic: It can be shabbied down extremely and yet remain classifiable as a definite fougere type.

The cheap fougeres have been exploited to the hilt in shabby barbershop products. Even today modified fougeres are offered for men's fragrances but their shabby reputation still persists, considerably reducing their success. Only the highest quality fougeres have any chance of success. Fougere should not be utilized for a men's fragrance unless it is highly bouqueted to mask its true identity.

The design of a fougere poses the same problem as a cologne: keeping the citrus tones in balance. A fougere overloaded with these tones becomes incredibly "cheap," even if it is a costly formula. Yet it is amazing how many times in the past this error has been made.

Bay Rum

This is a product rarely encountered today. Yet, in the past it has enjoyed two waves of great popularity. Therefore it must be touched upon in any discussion of men's colognes.

Originally, bay rum was either an infusion or distillation of raw rum with products of the bay tree. In recent years it has become a mixture of dilute alcohol perfumed with bay oil, a few essential oils, some rum-like esters, and traces of castoreum. The following formula demonstrates these points:

BAY RUM TONIC	
30	Oil of bay
10	Formacetic ether
2	Ethyl oenanthate
4	Eugenol
2	Clove terpenes
3	Oil pimento
3	Oil olibanum
2	Patchouly

Bay rum has always had a powerful "sting." Since this became associated with its medical efficacy, it became the practice to add a touch of capsicum to intensify this bite. Some of the products sold in the Twenties were truly fiery.

Tobacco

Occasionally a tobacco effect is used for a man's fragrance.

The argument for such an odor is that tobacco *is* a man's fragrance, highly familiar to men. True, but what woman wants her man to smell like a pipeful of tobacco? Therefore, many concessions to the feminine viewpoint must be made to obtain an attractive fragrance.

The fragrance of freshly picked tobacco leaves is not impressive. The cured leaves have a far more distinctive odor, due no doubt to the flavoring and processing of the green leaves. A genuine tobacco absolute from the cured material is available. It is a rather foul-smelling product in concentrated form.

To create a good tobacco fragrance, an immense amount of sweetening and bouqueting must be done.

Consequently, an attractive tobacco fragrance is much more a fantasy than an accurate reproduction.

The following type demonstrates an inexpensive tobacco note. It was popular many years ago for perfuming the cedarwood boxes used for Havana cigars.

TOBACCO ODOR FOR BOXES

150	Coumarin
100	Labdanum
100	Tolu resin
75	Phenylacetic acid
50	Bergamot
50	Methyl ionone Extra
50	Phenylethyl acetate
50	Dimethyl hydroquinone
20	Rose WN (Perf. Assoc.)
10	Aldehyde C-14 10% in DEP
5	Ethyl vanillin
5	Absolute Cyste

Modifications of this general formula have been used for men's cologne effects. Most of them tend towards the increase of cologne notes (bergamot, etc.) and the increase of rose effects. Occasionally castoreum absolute is added in traces, to create a smoky note.

I myself am not especially fond of the tobacco theme, but my opinion is not shared by others.

Florida Water

Florida Water is a class name for a product of infinitely varied formulations. It is one of the few genuinely early American fragrances, about as old as Tom Boyle's Balm, but it has enjoyed a far more lasting popularity.

Originally Florida Water was an infusion of citrus peels, Caribbean rum, spices, flower petals and tobacco leaves. Today, of course, essential oils and synthetics are used in a diluted alcohol. The following formula shows the early development of Florida Water on this basis.

AN EARLY FLORIDA WATER

10	Oil cloves Madagascar
10	Oil Chinese cassia
10	Oil Spanish rosemary
20	Alcoholic extract tobacco
20	Tincture Tonquin musk
30	Oil lemon
30	Lime oil
60	Mandarin oil
80	Bergamot oil

Today's versions are more elaborate. The clove oil is substituted with carnation compounds. Tobacco absolute is employed instead of the alcoholic extract. Cinnamic aldehyde and the recent methyl cinnamic aldehyde replace the cassia oil. Compositions of rose, jasmin tuberose and the like are brought in to build a floweriness impossible in the original formulations.

Historically and technically Florida Water has enjoyed the most fascinating career of any truly American fragrance. But, since it is not now widely used as a men's fragrance in America, I must turn to the more modern scene. Even so, I feel strongly that the Florida Water class is a theme for men's

MRS. NOUVEAU RICHE HAS BOUGHT A PIANO
Would You Like to Bet That She Will Ever Learn to Play It?
And Would You Like to Spend Some Time Hearing Her Practice?

What comes out of a piano depends on who is playing it. And the kind of soft gelatin capsules that come out of the machine depends on the knowledge, skill, judgement, and experience of the operating team.

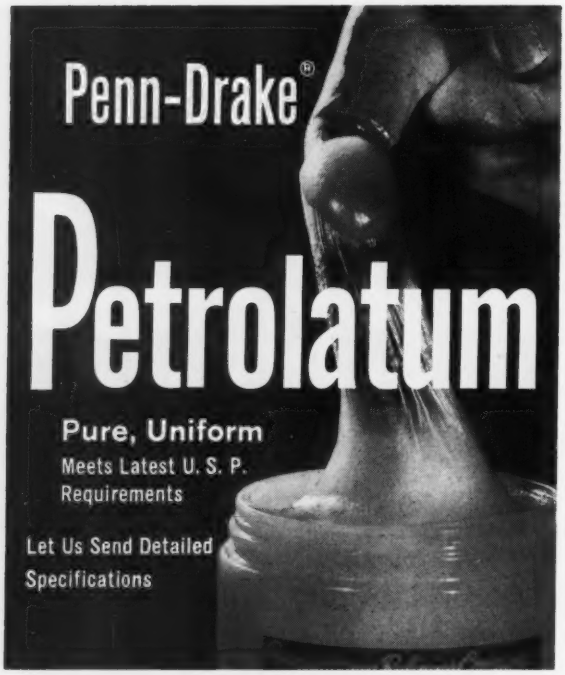
During the past six years our customers have learned that they can depend on the people who plan, direct, and supervise the 24-hour-a-day production at ENCAPSULATIONS. Equally important are the high standards and meticulous care in our quality control operation.

If you market any soft gelatin capsule products—or when you are considering putting a product out in that form—we would like to see you in your office (or in ours if you will visit us) to discuss your requirements and to offer you our services.

Won't you drop us a line? Or call us?

Encapsulations, inc.

288 Chestnut St./Newark 5, N.J.
Newark, MA 4-5665/N.Y., PL 9-5880



Pennsylvania Refining Company
BUTLER 30, PENNSYLVANIA
Branches: Cleveland, Ohio and Edgewater, N. J.

Best on the Market!
99.8% pure
Lemke
Phthalyl-sulfacetamide N. F.
Lemke
Sulfacetamide U. S. P.
Write today for samples and our new 10 page Price List covering more than 60 Fine and Technical Chemicals.
B.L.
MANUFACTURING CHEMISTS
LEMKE & CO. INC.
Plant • Office: LODI, NEW JERSEY
N. Y. Phone: BRyant 9-0677 • N. J.: PRescott 3-3900

fragrances which is being by-passed. Its story is colorful and well-documented and an advertising man's delight.

Colonial Roses and Spices

In colonial times a jar of dried rose petals and spices made each year by housewives was popular. It was used more as a feminine sachet powder than as a man's fragrance. One of my family's heirlooms is a piece of stretched, tanned sheepskin handprinted with the following formula for such a product. Grammar and spelling have been modernized.

A COLONIAL FORMULA

2 quarts	Dried red rose petals
½ pint	Dried heliotrope blossoms
¼ oz.	Ground cloves
¼ oz.	Ground nutmeg
¼ oz.	Ground pimento
⅛ oz.	Ground cardamon
⅛ oz.	Ground coriander
⅛ oz.	Caraway seed powdered
¼ oz.	Violet petals
¼ oz.	Oris root powdered.
q.s.	Salt, finely ground

With the exception of the rose petals and heliotrope blossoms, this was an expensive item, because spices were imported and very costly.

For curiosity's sake, I actually made up this formula about five years ago. It is good even today.

From this ancient recipe comes the theme for the fantastically successful current spice cologne. Although this original item has a fine odor, it must be heavily bouqueted to convert it into an attractive alcoholic fragrance. In doing so, a substantial part of the theme's accuracy had to be sacrified, to achieve technical and esthetic perfection.

The work of translating the original colonial theme into a practical fragrance oil is not easy. The following formula demonstrates the original theme without the detailed embellishment that converts it to a full, masculine cologne.

COLONIAL BOUQUET

2	Irone "S" 10% in DEP (Perf. Assoc.)
2	Citronellyloxyacetaldehyde (Verona)
2	Cumin ketone (Verona)
2	Oil cardamon
2	Phenylethyl propionate
2	Oil coriander
4	Dimethyl octanyl acetate (Verona)
4	Amyl salicylate
4	Musk ketone
6	Oil bitter orange
6	Oil nutmeg West Indies
6	Ylang Bourbon Extra
6	Rosottone (Penick)
6	Patchouly
8	Oil limes distilled West Indies
8	Oil lemon California
8	Heliotropine
8	Phenylethyl phenylacetate
10	Phenylethyl alcohol
10	Oil vetyvert Bourbon
10	"Oryclon" (Verona)
10	Mugoflor 5% in DEP (Verona)
12	Musk ambrette
12	Benzyl salicylate
12	Eugenol extra
12	Citronellol extra
14	Vetyvert acetate extra
24	Isoeugenol extra

Even a cursory examination shows that this formulation is expensive.

The famous spice fragrance is keyed upon this pattern, but heavily bouqueted with floral specialties such as new-mown hay, carnation, jasmin, sweet pea, tuberose, neroli and, of course, rose. Actually, three rose compositions are employed. One is an absolute type, another is an otto effect, while the third is distinctly oriental. Ionone AB, methyl ionone, nerol, an aldehydic bouquet, traces of the quinoleines, civet, castoreum, and a smoky leather effect are introduced as variants. Then, for its cologne lift, it is loaded with extra fine bergamot. All these effects cost money.

Undoubtedly the finished fragrance oil has the most complicated recipe in our trade, considering the number of subsidiary compositions that must be made. Is it any wonder that this famous fragrance has never been successfully imitated, much less copied? Its complexity and material cost militate against a matching venture, right from the start. Its final material cost exceeds what most people are willing to pay for a finished fragrance oil from a supplier.

In my opinion, the possibility of creating a series of more brilliant, showy and luxurious spice fragrances than the present one are excellent—and with about the same cost for materials. I have made a few to test my theory, with surprising results.

I have also considered the chances of creating a "super" fragrance, super in material cost and in the retail selling price—in line with the trend to ultra-fancy, high-priced men's colognes. The idea works out exceptionally well. New products and specialty chemicals make it possible, for example: Hesperidol H/5 (Verona); Rosottone (Penick); Agrumen aldehyde "N" (Verona); Jasmin acetate (Robertet); Bergamot Hesperides Extra (Chiris); Latyron "A" (Verona); Rose WN (Perfumery Associates); Roselium (Givaudan); Tabac Absolute (Robertet); Civetiane (Perfumery Associates).

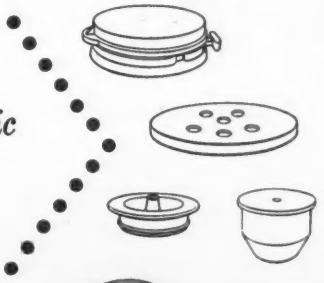
From the opposite viewpoint, I have tried to make cheaper versions of this famous odor with absolutely no luck. It takes only an amazingly small substitution of less costly ingredients to make the odor fall apart and become only a shabby caricature of its former elegance. A high standard of quality has been maintained by the manufacturer, and this has defeated the incursions of the "matchers." To make a good copy today is altogether a do-it-yourself proposition.

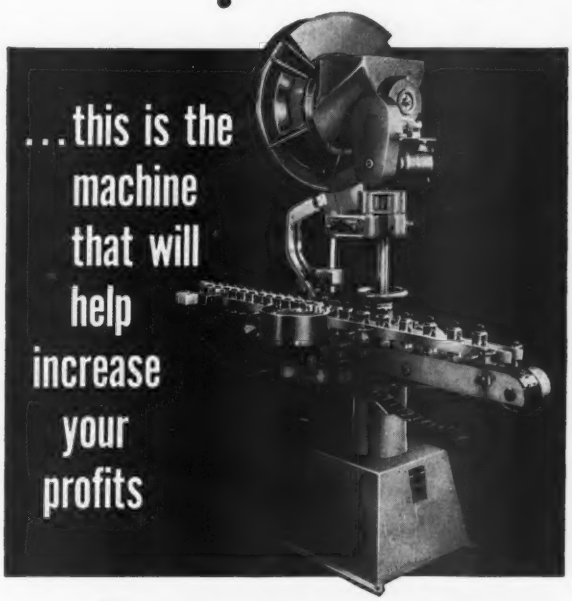
PHARMACEUTICAL REVOLUTION

(*Continued from page 768*)

operated breeding operations to rural factories in the field, they are participating in it vigorously. The modern animal-oriented pharmaceutical business be-

If you are using plastic fitments like these





IT'S the Consolidated H-O-F Capper, and you can use it for applying odd as well as conventional shapes of *aerosol* caps. You'll get automatic sorting, too. And you'll find this machine fits into any *aerosol* filling line. Speeds from 60 to 250 caps per minute with ready changeover from one size container to another. Write for complete details.

Other machines are available to handle odd shaped closures such as these

Consult our packaging specialists for complete information about the H-O-F Capper, as well as other Consolidated machines, for the drug and cosmetic fields.

CONSOLIDATED PACKAGING MACHINERY CORP.

A Subsidiary of International Paper Company

1400 WEST AVE., BUFFALO 13, N. Y.

CLINTBROOK

CAMPHOR USP
& Technical
CAMPHOR TABLETS,
Tower Brand (R)
PABA & Salts
PROCAINE Base
PROCAINE HCL
THEOBROMINE SALTS
Acetic Acid
Acetone
Alcohol Prop.
Methanol
Methanol AntiFreeze

CLINTBROOK CHEMICAL COMPANY
division of
CHAS. L. HUISKING & CO., Inc.
417 Fifth Ave., New York 16, N. Y., Phone: ORegon 9-8400. Cables: Huisking, N. Y.
Plant and Warehouse at Lyndhurst, N. J. Chicago Office: 435 No. Michigan Ave.

CLINTBROOK CHEMICALS

by BRAUN

a bottle...

GLASS AND
PLASTIC
BOTTLES
AND CAPS
SINCE 1909

W. BRAUN CO.

CHICAGO 6, ILL. 300 N. Canal Street
RAndolph 6-5633
NEW YORK, N. Y. 47 West 34th Street
LOngacre 3-2262
ST. PAUL, MINN. 1835 University Ave.
Midway 4-3531

THE ROUND
FLUTED PINCH
In 1-ounce
and 4-ounces

Write for our free catalogue

gan around 1935 with the experimental introduction of vitamin A in broiler feeds. These proved such a success that American home makers as well as poultry raisers became aware of the vast improvement of the broiler industry.

Antibiotics were slowly introduced in the early Nineteen Fifties. In 1955 and 1956, science discovered how to employ antibiotics in mass feeding and in water. It was discovered further, that broad-spectrum antibiotics are effective both as controllers of diseases and as growth stimulators.

The broiler industry's experience with pharmaceuticals is a case in point. Twenty years ago, Americans considered a chicken dinner a special occasion, and total production was only about 200 or 300 million annually, or about two birds per capita. Disease was almost uncontrolled, and poultry breeders suffered fantastic losses, as high as 30 per cent.

Today, poultry breeders produce some two billion birds a year, with disease losses of about 2 per cent —only a fraction of total production. Further, it is possible to turn out a three-pound broiler with less than eight pounds of feed. This feed is likely to contain vitamin A, niacin, riboflavin, pantothenic acid, lysine, vitamin B_{12}, D, and K, and antibiotics and medicinals. These latter have cut down losses enormously by guarding against many of the former scourges of the poultry breeder: coccidiosis, Newcastle, blackhead, chronic respiratory disease and infections.

As a footnote, it should be said that drug laboratories are perfecting new and more effective coccidiostats; some are designed to counteract strains of coccidia that have developed resistance to older drugs. Laboratories are also working on enriched "dream feeds," to produce a pound of meat from a pound of feed.

Speaking of feed, changing consumer tastes in the kind of steaks, lamb chops and hamburgers they want has increased sales of feed additives. In this cholesterol-conscious age people are demanding leaner cuts of meat and poultry. So, like a Rube Goldberg cartoon, the supermarkets are putting pressure on the meat packers, and the meat packers are putting pressure on the livestock breeders, who are being forced to develop less fatty cattle and hogs, which means demanding feeds prepared especially to produce a greater proportion of meat to bone.

This is a case in which the pharmaceutical industry is making a profit, as well as keeping American bay-windows and cardiac troubles down. Indirectly, today's enriched feeds and drugs are making things easier at home. Because today's home maker dislikes spending many hours at the hot stove, many women are turning to boneless, pre-cooked meats, frozen and canned.

This has built up a growing market for enzymes. Increasingly they are fed to cattle before processing, for they provide evenly distributed tenderness

through the meat. Enzymes are also being used in a tenderizing process by scientists in the frozen and canned meat field.

Big as the animal health field is now, it is only beginning. Jim Bodurtha of Wildrick and Miller, agricultural consultants, says that the "American farmer is in great need of antibiotics, medications, and vaccines for relief of his troubles from sick birds and stock. Farmers only spend 80 cents a year on health aids for each head of cattle, and yet, production losses in meat, milk and hides alone are cutting their return some six dollars per head, or a total of $7,000 million a year."

Financial losses from disease are staggering—almost $2 billion a year. Naturally, such devastating losses give pause to every livestock breeder. He cannot afford to ignore this damaging situation. For economic survival, he must arm himself with every possible weapon to beat back mastitis, pneumonia and other diseases. As if this weren't enough to keep him busy, he is being prodded by veterinarians, geneticists, agricultural experts, and, of course, a wide variety of promotions. Sales are promoted through ads in such farm newspapers and magazines as *Feedstuffs*, *The Farm Journal* and *Poultry Breeder*. Rival drug firms also compete with hard-sell copy on radio and television—this Merck TV commercial, for example:

"Swine owners! Don't take chances with baby pig anemia. Baby pigs need supplemental iron to prevent anemia until creep feeding begins. A new product from Merck-Gro-Aid. . . ."

It then goes into technical data on how the iron-additive works and its scientific aspects. This is largely the style for rival firms. They all lace their copy with plenty of technical material. Wholly emotional appeals are out, and today's salesmen in the animal health and drug field are highly knowledgeable about livestock problems.

In the battle for sales, radio and television interviews are a popular publicity device. They consist of pre-recorded discs or TV scripts to accompany silent film clips, issued by the various firms. The format is generally an interview between a radio or television farm newscaster and a company scientist. Such broadcast materials are used by many radio and TV stations, and here the news is flavored with the mention of specific products. There are also giveaways. One instance is a cost-accounting chart put out by American Cyanamid, which is designed to win friends among livestock breeders.

It is in precisely this area of cost accounting that the livestock market for pharmaceuticals shows its true colors—black ink. Their use pays off, which is why the field has grown so quickly. Three top firms are Pfizer, Merck and American Cyanamid, but many smaller firms are cutting good slices of the pie. Some are doing well by concentrating on one prod-

(*Continued on page 862*)

If you produce hair colorants or bleaches, Becco can help improve your product!

WE NEED hardly tell you about Becco Hydrogen Peroxide—Becco has long been almost synonymous with this product. But, perhaps you did not know that Becco is also a prime supplier of such bleaches as Ammonium and Potassium Persulfate, Sodium Pyrophosphate Peroxide, and Urea Peroxide. Moreover, we have a wealth of data available to help you use these Becco bleaching agents to improve your products.

We've listed some of our Technical Booklets below. They're free for the asking. Simply mail the coupon or write on your letterhead. Also, feel free to consult with Becco on any problems you have regarding active oxygen. We'll be as helpfu' as we can, and there's never any obligation. Address: Dept. DCI-26.

For preparing dilute solutions—
H_2O_2 Formula D—Bulletin No. 42.

Where more thorough bleaching is required—
Ammonium Persulfate—Bulletin No. 49; Potassium Persulfate—Bulletin No. 11

For bleaching operations which require alkalinity with good stability—
Sodium Pyrophosphate Peroxide—Bulletin No. 8.

As a source of water-free H_2O_2—
Urea Peroxide—Bulletin No. 10.

BECCO fmc

Becco Chemical Division, FMC
161 East 42nd St., New York 17, N. Y., Dept. DCI-26

Gentlemen:
Please send me the free Technical Bulletins checked below:

☐ #42 ☐ #11 ☐ #49 ☐ #8 ☐ #10

Name_____

Firm_____

Address_____

City_____ Zone_____ State_____

RONA™

*Natural PEARL PIGMENT Concentrates

We have taken Nature's unique crystalline pigment guanine from the scales of fish and highly purified it specifically for cosmetic formulations.

NON-LEAD SYNTHETIC PEARL PIGMENT CONCENTRATES are now available. Proven Non-Toxic in Animal Studies.

Rona Pearl is a new and distinctive high fashion color for:

Nail Enamel — CN base
Eye Make-up — CO base
Lipstick — CO base
Hair Preparations — AQ or Alc. base

* F. D. A. approval

RONA PEARL CORPORATION
A Division of Rona Laboratories, Inc.
East 21st & 22nd Sts. Bayonne 36, New Jersey
Largest exclusive manufacturers of Pearl Essence
Plants: Maine—New Jersey—Canada

CALL ON WHITTAKER FOR...

Cosmetic Titanium Dioxide N.F.
•
"Alpine" Talc USP and TECH. Chemically Beneficiated
•
Thomasset Certified Cosmetic Colors
•
Eye Make-Up Colors

WHITTAKER

Whittaker, Clark & Daniels, Inc.
100 Church St., New York, N. Y.

(Continued from page 861)

uct, backing it with sales promotion as well as radio and TV advertising. One recent example of this is the push by Myzon to sell Super-Iron Plus (injectible iron, plus vitamins) in the hog market, 70 per cent of which is in the Midwest.

Confident in the future of livestock pharmaceuticals, many firms are either expanding or building new facilities, or both. American Cyanamid's Princeton Agricultural Center now being built is reportedly one of the first industrial research installations capable of carrying out an all-inclusive program in the field of agriculture and livestock breeding. More than 350 persons will be employed—experts in bacteriology, botany, agronomy, animal nutrition, parisitology and poultry pathology.

Pfizer's belief that the livestock market will belong to those companies with the most effective service has led into unorthodox paths. The company is thinking of an experimental health insurance plan for livestock breeders, a counterpart to what already exists for human beings. They may launch the plan in Cullman, Alabama, where Pfizer has a field laboratory.

This unique venture into the field of marketing is simplicity itself. A poultry grower, for example, would pay an insurance premium, perhaps a cent a bird. In return he would get free laboratory tests, quick diagnosis, and, what's more, free medications. The advantages to the livestock breeder are these: For a flat fee, he knows that, if disease strikes, he will have expert analysis, diagnosis and medications to meet his needs. Moreover, a Pfizer official explained, "Even if the lab experts suggest an item or drug not made by Pfizer, we'll recommend it."

Nobody knows whether such a project will get off the ground, but it indicates—as do sales figures and building expansion—that there are new frontiers in both food science and marketing, and that the pharmaceutical industry is deeply involved.

Having come of age, the animal health and nutrition field is now experiencing a second period of growth. In its brief quarter of a century, the pharmaceutical industry has already made great contributions to the livestock raiser, the poultryman, to their economic well-being and, of course, to the country at large. Right now, an expanding population requires greater animal production. Our population is increasing by some 7,500 persons daily. The prediction is that it will be 211 million by 1970. All of which means an ever greater market for livestock pharmaceuticals.

On the scientific side, the future will undoubtedly see finer and more effective nutrients and antibiotics to help the livestock breeders; drugs will keep more animals alive, and make for even better quality.

That's a preview of the future. For the present, the drug industry merits great praise for its vast improvement of animal health. •

(*Continued from page 836*)

House Organs

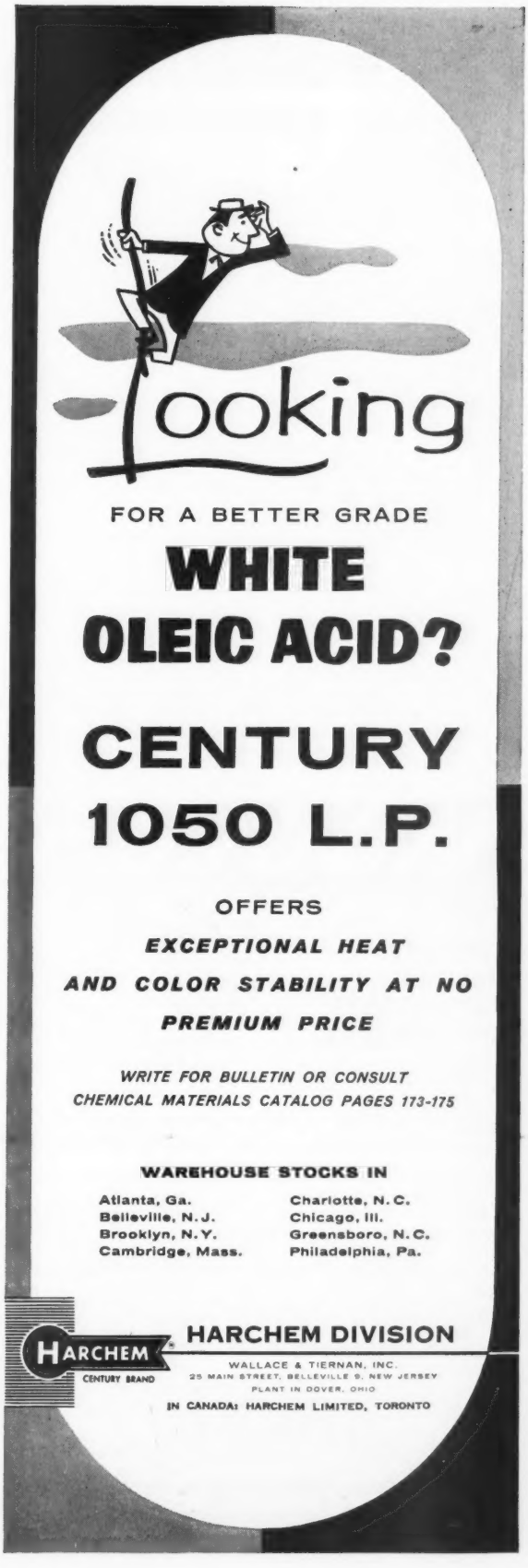
There are many excellent house organs which provide sufficiently detailed technical information to make them very valuable. Some, like *Schimmel Briefs*, charge a subscription fee and are regularly reprinted in trade journals as well. Most of them are freely available on request and many are published as often as once a month. Of interest to our industry are: *Dragoco Report*, *Dyestuffs* (National Aniline Div., Allied Chemical Corp.), *The Technical Bulletin* (Du Pont), *Seminar Report* (Merck, Sharp & Dohme), *Foote Prints* (Foote Mineral Co.), *Recherches* (Roure-DuPont), *Ideas in Development* (Armour), *Technica* (Geigy), *What's New* (Abbott), and many others. Many of these house organs contain articles that are never printed elsewhere nor even abstracted in the standard journals, apparently on the assumption that privately printed articles are of interest only to a very limited audience. If you also believe this, you're missing some excellent sources of information.

Word-of-Mouth Information

Most of the papers in the technical journals of the various societies have been presented orally as much as a year earlier. This time lag alone is good reason for attending the actual meetings whenever possible. Keep in mind also, that usually only papers presented at national meetings of a society appear in its official journal. The many local sections often have monthly meetings at which time they present a speaker whose address is not apt to appear in print at all. Furthermore, there is always the stimulating opportunity to hear the speaker and ask questions directly of him or of others at the meeting.

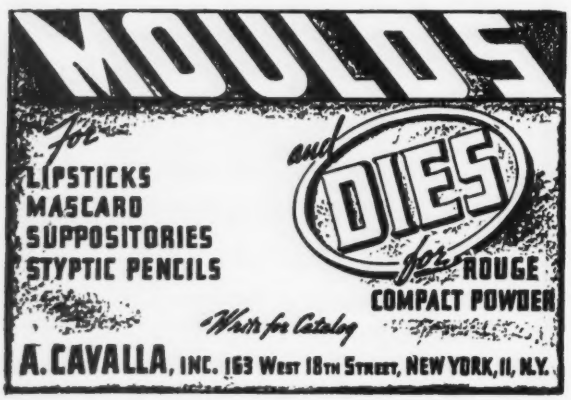
Another important source of information is the technical salesmen representing the various suppliers to our trade. It may be a little dangerous to believe implicitly everything they say about their products, but one is foolish to ignore such information altogether. Naturally, salesmen are trying primarily to sell their products. How they do so is often a mark of the man and the company he represents. The more factual and technical the data offered, the more likely the product is to be investigated. If a suggested formula contains gross amounts of the supplier's product for no apparent or justifiable reason, that formula is less likely to be tried in the laboratory. If no stability data is available, or irritation data, or corrosion characteristics when an aerosol formula is being described, obviously it will be passed over in favor of one accompanied by such information.

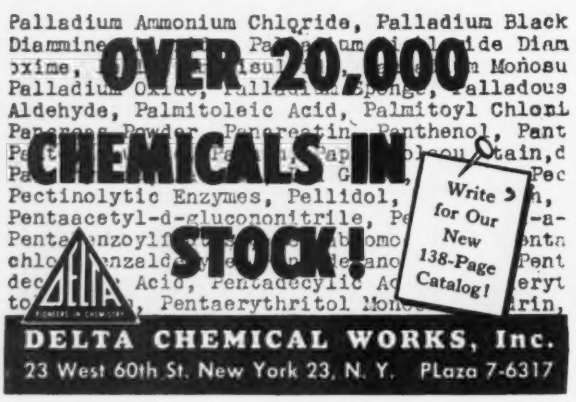
A favorite trick of some of the less respected salesmen in the trade is to tell the chemist "confidentially" that one of his products is being bought by another cosmetic house for use in one of their formulas. Sometimes he reveals the percentages used; sometimes he offers the whole formula; sometimes he merely hints that the other company has bought



Experimental data and practical manufacturing experience of **over** 100 years' specialization in beeswax and beeswax compounds are at your service without cost or obligation. Write about your beeswax problems to

WILL & BAUMER CANDLE CO., INC.
Dept. DC, Syracuse, N. Y. Established 1855
Bleached White Beeswax — Yellow Beeswax — Stearic Acid
Spermacti — Ceresine — Composition Waxes — Red Oil





another 2500 pounds this month, for this purpose. It is surprising how many *different* salesmen will sometimes tell the same story about the same hot item sweeping the market—obviously somebody is lying. Sometimes a salesman knows that an ingredient made by one of *his* competitors is in Hot Item XYZ, and will blandly tell you that his own is actually the one being used. Analysis of XYZ apparently confirms his story.

A good way to check on such stories and at the same time accumulate useful information is to keep a card file on competitive products. On such a card should go every last bit of information passed on about it—whether label information, your own analysis or guess, results of any product testing you may have done, rumors from salesmen, and information from other competitive chemists who may also have looked at the product. Many such snippets of information often add up to a surprisingly coherent story and can give a very clear picture of your competitor's product.

In all fairness to the majority of technical representatives of both the major and minor suppliers to the trade, however, I hasten to point out that most of them do *not* divulge confidential information entrusted to them, and many are qualified chemists who know their own particular field of chemistry exceedingly well and can be most helpful to the formulator with problems to solve. A great many representatives receive no direct benefit from sales of their product to customers. They are literally offering technical service for their companies, and are trained to think and act primarily from this viewpoint. They are most willing to set up private conferences with the individual formulating chemist and will often carry out extensive testing programs in their own laboratories to supplement an investigation involving their raw materials in a customer's private formulation. This service gives the customer the benefit of a different approach by chemists who have a wide view of the entire field; it also provides him with the benefit of laboratory equipment which he may not be able to afford.

The ultimate of such technical service is the willingness of many suppliers to set up seminars on general subjects for the benefit of a group of chemists, in their own laboratory. An aerosol propellant supplier, for example, recently gave a two-hour seminar in our laboratories on corrosion measurement and prevention. About 15 chemists and technicians from three different laboratories of our company had the benefit of studies covering several years of work by experts in the field. This was an immensely valuable morning to our people. Had there been a similar seminar offered at a society meeting, many of the chemists could not have attended, and they certainly would not have had the same chance to ask individual questions. Nor would they have been willing to ask certain of their questions in pub-

lic, so to speak.

Similar seminars can be set up in many fields. Surfactant manufacturers and manufacturers of lanolin derivatives have done the same thing—giving general talks on the chemistry and use of their specialties. These discussions very quickly cut to the heart of problems directly affecting the formulating chemist, when he can bring them up in a confidential setting. They help him solve such problems far more directly than does any general paper presented to a society meeting.

Storing the Data

As with any problem-solving situation, storing of accumulated pertinent data in suitable "memory banks" is very important, if all this effort is not to go to waste. The information must be so filed that it is easily available under categories that are likely to be consulted when a problem arises. Very few companies are large enough to afford a staff and mechanical or electronic equipment devoted entirely to the filing of technical data and making it available to the chemist by machine sorting.

In most small and medium-sized research laboratories, this work must be a cooperative effort by the director of the lab and his chemists. Information is more useful when stored under intended usage categories than under the names of suppliers. When a chemist is faced with a problem involving thickening by use of gums or similar agents, it is far easier for him to turn to a file on "gums and thickeners" than to have to search through two dozen "company" files, which also contain information on surfactants, pigments, aerosol propellants, and the many other products offered by that supplier.

Setting up such a filing system often involves cross-filing. A gum or thickener may also be filed under "emulsion stabilizers," or a portion of the data booklet on the gum may also appear under "toxicity." Because space is limited, it may be undesireable to duplicate the actual data in several categories. In that case, a slip of paper may be entered in the "toxicity" file simply indicating that information covering XYZ Thickener is available in the "gums" file. Another way of handling this cross-filing problem is to set up a card file covering each item and category of interest. In this way, the chemist can be told where the information he seeks is filed even though only one copy exists. The single copy is then usually filed under the most appropriate category.

The use of card files can be extended into many other areas of information. Patent card files can be set up, usually simply by patent number. The patents themselves, or abstracts thereof, can be filed under the appropriate category in the main file (hair coloring, deodorant, antiperspirant, etc.). Rather than take the time to abstract the actual patent for the card file, we often photostat published abstracts

Rx ...for a
SUCCESSFUL
meeting...
Gulf Hills
DUDE RANCH and COUNTRY CLUB
OCEAN SPRINGS, MISSISSIPPI
GULF HILLS has all the ingredients for a really great convention! The famous Pow Wow Room accommodates up to 200. Enjoy golf on a championship 18-hole course, horses, tennis, fishing, swimming in a heated pool, and delicious ranch style meals. The most wonderful combination for business and pleasure you can find anywhere! So when you plan to have a meeting, plan first to have it at GULF HILLS. All inclusive rates.
TRinity 5-4211
Chicago, NAtional 5-8200
Write or phone for complete information on Business Facilities.

ROBECO
YOUR CONTACT WITH THE WORLD'S MARKETS
ESTABLISHED 1918

SPECIALTY PRODUCTS

The "NEW" in Cosmetics and Topical Pharmaceuticals

CAROLATE*
Self-emulsifying Spermaceti-Amide 'the satiny feel'

PRISTANE
Tetramethylpentadecane, Norphytane C_{19} H_{40}

ROBANE®
Purified Hexamethyltetracosane, Squalane C_{30} H_{62}
'Liquid vehicle NATURAL to skin and sebum, accelerates percutaneous penetration'
(Pat. Pend.)

ROCIN*
Di and Tri Bromo Salicylanilide
Bactericide—Fungicide—Preservative — 'high activity—low concentration'

SILK
Natural Protein Powder
'high porosity and absorption'

SQUALENE
Hexamethyltetracosahexene C_{30} H_{50}
'a product of human sebum'

ROBECO CHEMICALS, INC.
25 EAST 26th ST., NEW YORK 10, N. Y.
CABLE ADDRESS "RODRUG" N.Y. ALL CODES
MUrray Hill 3-7500

®Reg. U. S. Pat. Off. *Trade Name

DRUG & COSMETIC CATALOG 1960-1961

The only comprehensive reference book published biennially exclusively for the Drug and Cosmetic manufacturers over the past 29 years.

WHAT'S IN IT?

Alphabetic lists in separate sections giving SOURCES OF SUPPLY FOR ALL RAW MATERIALS, MACHINERY, PACKAGES AND PACKAGING MATERIALS USED BY OUR INTER-RELATED FIELDS.

AEROSOL SECTION listing all contract fillers and sources of supply for all ingredients and machinery for the production of Aerosol packages.

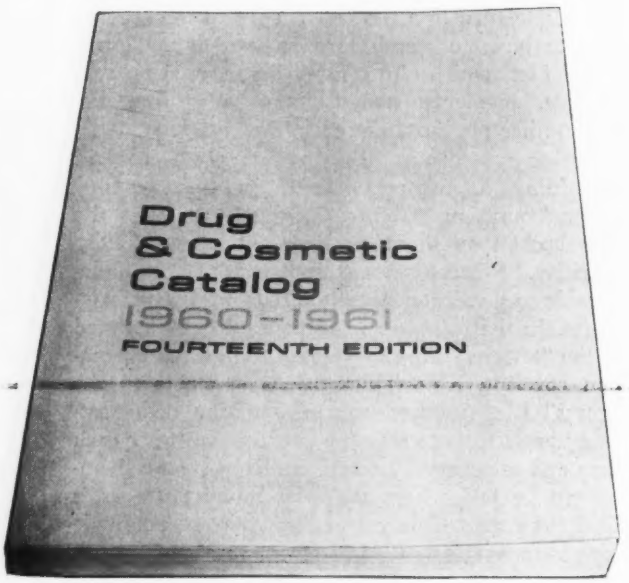
Indices listing TRADE MARKS, TRADE ASSOCIATIONS and TRADE PUBLICATIONS.

A list of all PRIVATE FORMULA houses.

LEGAL SECTIONS AND STATISTICAL INFORMATION showing import and price movements on all raw materials for 10 years past.

The DRUG & COSMETIC CATALOG has a separate section for every phase of the manufacture of drugs and cosmetics. Each section is alphabetized for quick and ready reference use.

It is invaluable in locating and selecting suppliers of basic materials for established or new products, and is the most complete and comprehensive summary published for this industry.



Order Your Copy Now $4.00 domestic $5.00 foreign
New York City Tax 3%

BOOK DEPARTMENT

Drug & Cosmetic Industry 101 WEST 31ST. STREET NEW YORK 1, N. Y.

from the *Official Paent Gazette* or technical journals and paste these on our 4x6″ cards, adding only the date, title, patent owner, and patent number—in large print for easy spotting. If the patent is of interest in several fields, duplicates of these abstract cards can be made for cross-filing.

As previously stated, card files concerning competitive formulas are very useful. Dates of introduction, summary of ad claims, label information, prices, formula hints by competitor chemists or technical sales people, analytical data from your own lab, and product testing results can all be summarized in a few sentences on such a card.

Many technical brochures give suggested formulas for products containing the supplier's raw materials. A card file with such formulas in appropriate product categories is very useful. The date offered and the name of the supplier should always appear on the card. Any lab tests on the formula should be summarized in a few sentences, so that the next person looking for ideas will know its virtues or faults.

Many such file systems could be set up; the number should depend on the time available and interest of the users. One, however, is often badly neglected, namely, the company's own formula files. Many companies discard obsolete formulas too quickly. A lawsuit could come up which might take a few years to reach trial, and yet require detailed information regarding a now obsolete formula. A prime question often asked in such cases is, "Why did you change this formula? Was the old one irritating?" Another use for files of obsolete formulas is to make sure that new chemists do not go backwards in their efforts to improve a formula. In 1960, a formula may be changed to eliminate a certain raw material that has been shown to hydrolyze the presence of certain essential ingredients such as aluminum salts for antiperspirants. It would be most embarrassing if a new chemist decided to put this ingredient back into the formula in 1962, because it gives a nice skin feel. If the director of research has been replaced meanwhile, this retrograde change in formula could very easily be made, and all sorts of product instability would not show up until after the formula had reached the market.

In summary, I am the first to admit that none of the above suggestions are either original or even comprehensive. Different formulating chemists will have specialized problems, depending on their fields of interest. One chemist may file all the perfume data he normally needs in one small folder labeled "perfumes." A perfumer, on the other hand, will obviously treat his own field far differently. Similar changes in emphasis will be made by every formulator, according to his needs. The important thing is to recognize the need for the systematic collection and filing of all the technical information so freely available. ●

GILLETTE
EXPANDS
PROFESSIONAL
STAFF

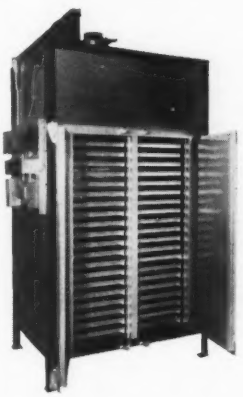
Long associated with excellence in grooming, Gillette has entered the field of men's toiletries and requires the addition of several senior men to its permanent professional staff.

COSMETIC CHEMIST
Experienced in formulation and evaluation of toiletries and cosmetics.

PERFUMER
Responsible for evaluation of fragrances, improving existing formulae and quality control of current compounds.

Send resume including salary requirement in complete confidence to G. E. Wermert

GILLETTE SAFETY RAZOR CO.
Gillette
Gillette Park, Boston 6, Mass.



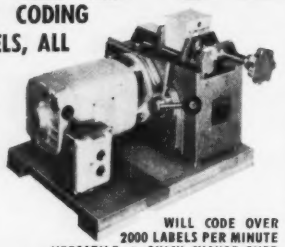
STANDARD ELECTRIC 40 TRAY CABINET DRYER MODEL 1333-5-T2

DRYERS for powders and tablets.
OVENS for heat sterilization of glassware.
OVENS for annealing glass.
We serve the drug and cosmetic industry with standard or special equipment to serve its changing needs.

LYDON BROTHERS, INC.
85 Zabriskie St., Hackensack, N. J.

CODEDGE

LABEL DATING AND CODING MACHINE. CODES LABELS, ALL SHAPES, ALL SIZES. CLEAN, FAST AND ECONOMICAL, SAVES TIME, LABOR AND MONEY. NEVER A SERVICE PROBLEM.



WILL CODE OVER 2000 LABELS PER MINUTE
VERSATILE • QUICK CHANGE OVER

FOR DETAILS WRITE TO:
GRIFFIN-RUTGERS, INC.
DEPT. DC-12, 14 HARWOOD COURT, SCARSDALE, N. Y.

ZIMCO® VANILLIN U.S.P.

A QUALITY VANILLIN WITH FINER AROMA, BODY AND FLAVOR
The Original Lignin *VANILLIN*

Zimco is the natural source vanillin which has become the standard of excellence throughout the industry.

Sterwin Chemicals Inc.
SUBSIDIARY OF STERLING DRUG INC.
1450 BROADWAY, NEW YORK 18, N. Y.
2020 Greenwood Street, Evanston, ILL.
Branch Offices and Warehouses in Leading Cities

WORLD'S LARGEST SUPPLIERS OF VANILLIN

Classified Advertising

Situation Wanted

PHARMACEUTICAL CHEMIST—17 years diversified experience in the research and development of dosage forms including aerosol products. Capable of taking a product idea from its inception to the marketing level. Seeking a position in development, production or technical sales. Desire to relocate in south, far west or Latin America. Box D-2, Drug & Cosmetic Industry.

Help Wanted

COSMETIC DEVELOPMENT CHEMIST for established firm in Southern California. Knowledge of raw materials and manufacturing procedures essential. Send complete resume including salary requirements to Box N-3, Drug & Cosmetic Industry.

COLOR MAN: To supervise make-up manufacturing in midwest plant. Should have experience in compounding all types of make-up and matching of shades. Permanent position with expanding company. Excellent employee benefits and working conditions. Submit resume of experience and state salary requirements. All applications will remain confidential. Box N-4, Drug & Cosmetic Industry.

PHARMACIST DEVELOP'T

Challenging opportunities in modern development laboratories of ethical Pharmaceutical firm, centrally located Westchester, N. Y. Formulations and development of liquids, ointments, suspensions, solutions and other Pharmaceutical presentations. (1) Opening for a B.S. graduate and (1) at the Ph.D. level. Send resume stating salary requirements to:
BURROUGHS, WELLCOME & CO., U.S.A.
TUCKAHOE 7, N. Y.

Business Opportunities

EXPORT — EUROPE

EFTA countries.

Manufacturer of essences, perfumes, aerosols intends to construct a new small factory with offices near Zurich, Switzerland. Offers cooperation with American enterprise which wishes to produce and sell in EFTA countries under supervision of former Dupont chemist.
Approximately $100,000 investment.

Please write to . . . .

D-1, Drug & Cosmetic Industry
101 West 31st Street, New York 1, N. Y.

Machinery and Equipment For Sale

FOR SALE: Kent 20 Gal. Gearless Pony Mixer; Day 50 Gal. Stainless Steel Sigma Blade Mixer; Colton #4 and #5 Semi-Automatic Tube Fillers with Colton Closers; Elgin Dual Piston Filler; S & S Model G-1 Stainless Auger Filler; Triangle Carton Gluers & Sealers; Haskins Bench Model & Elgin Semi-Automatic Screw Cappers; N. J. MX Pony Labeler; Stokes "E"—"F" & "R" and Colton #4 Single Punch Presses; Horiz. Spiral Blenders Steel & Stainless Steel; Jack. Kettles 50 to 300 Gallon Stainless; Vertical Stainless Steel Tanks 100 and 3000 Gallons; Rotex Sifters 20" x 48"-two deck, 30" x 96", 40" x 84" & 60" x 84"; Portable Agitators; Conveyors, etc. Send for latest listings. The Machinery & Equipment Co., Used Div. of Haring Equipment Corp., 91-93 New Jersey R.R. Ave., Newark 5, N. J., MArket 2-3103.

FOR SALE: Potdevin Corliss Collapsible tube labeler—Colton Wet Granulator—Lab size Charlotte Mill—New open and closed SS Bowl Super Centrifugal Separators Japanese make at $1900.00 each—New Jabez Burns #12 Coffee Burr Mills—Stokes Model F & E Tablet Presses—Stokes Crimper & Closures—New Jersey 86 ML & 186 Pony Express Labelers—Tite Cap automatic capper—Model B-1 and B-2 Whiz Packers—Model 1 C Simplex Bag Machine—3 Schooler Cellaphane Wrapmasters—New S.S. Tanks Type 304 100 gal. size $175.00 each also low prices on 300, 500, 1,000 gallon—1½ H.P. Lawrence Vortex Mixer—Adriance Motor Driven Crowner—Model EDG Ertel Filter—J. & J. Vacuum Powder Fillers—Twin S.S. Filler Machine—2 P C Colton Tube Crimper—38" Acme Copper Coating Pan—12 Head Straight Line MRM Vacuum Filler—S.S. Filters. Jules Saville, 758 S. San Pedro St., Los Angeles 14, Calif.

Real Estate For Sale

Available! Superb
AIR CONDITIONED
72,700 SQ. FT.
Modern Plant Ideal for
Drugs, Chemicals Mfg. or Laboratory
★ 28,500 sq. ft. floors
★ Offstreet parking
★ Undercover loading
PHILADELPHIA, PA.
BINSWANGER
1420 Walnut St., Phila. 2, Pa. • PE 5-0202

Machinery and Equipment For Sale

PROCESS EQUIPMENT!

2—5700 gal. horiz. T304 SS tanks, UNUSED.
3—2750 gal. T316 SS vert. tanks.
1—Bowen lab. st. st. Spray Dryer.
2—100 gal. T304 SS reactors, ASME, jacketed, UNUSED.
5—1350 gal. T347 SS jkt. kettles.
1—1960 sq. ft. T316 SS heat exchanger.
2—Pfaudler 500 gal. glass-lined reactors.
30—Sharples #AS-16V centrifugals, Inconel const., 3 HP vapor-tite, sludge disch. frame.
1—Buflovak 110 sq. ft. vac. shelf dryer.
1—Buflovak 98 sq. ft. vac. shelf dryer.
1—Devine 80 sq. ft. vac. shelf dryer, UNUSED.
1—Graver 750 gal. T304 SS fermenter, jktd.
1—E. & S. 125 gal. T304 SS fermenter, jktd.
1—Fitzpatrick #F, T304 SS comminutor.
1—Stokes model #R tablet press.
2—Mikro #3TH pulverizers.
1—Colton Suppository machine.
2—Spray dryers, 4' dia. pilot size, T304 SS.

PERRY EQUIPMENT CORPORATION
1429 N. 6th St., Phila. 22, Pa.
POplar 3-3505

MODERN REBUILT MACHINERY

UNION Rebuilt Machinery Established 1912

Coating Pans—14", 28", 32", 36", 42" sizes.
Colton 6 ft. diam. S.S. Blending Pan.
F. J. Stokes Model 90-D Automatic Stainless Steel Tube Filler and Closer.
Pneumatic Scale High Speed Automatic Cartoning Line with Feeder, Bottom Sealer, Top Sealer, Wax Liner and all interconnecting conveyors.
Pneumatic Scale 4-Head High Speed Cappers.
Package Machinery Models FA, FA2, FA4 Wrappers, with and without Electric Eyes.
Hayssen, Scandia, Hudson Sharp Overwrap Machines—all sizes.
Package Machinery Model F10 J Kraft Paper Bundler.
Pak Rapid Model A Pill Strip Wrapper.
Stokes and Colton Granulators.
Baker Perkins, Day, W. & P. Heavy Duty Jacketed Mixers, 5 to 200 gal. caps.
Day 50 to 10,000 lb. Dry Powder Mixers.
Tablet Machines — All types.
Mikro 1SH, 2TH, 3TH, 4TH Pulverizers.
Standard Knapp, A-B-C, Ferguson, Ceco and Ross Carton Sealers.
Fitzpatrick Model D K7, K8, S. S. Comminuters.

Tell Us All Your Machinery Requirements
Complete Details Promptly Submitted.

UNION STANDARD EQUIPMENT CO.
318-322 Lafayette St. New York 12, N. Y. CAnal 6-5333
167 N. May St. Chicago 7, Ill. SEely 3-7845

Drug and Cosmetic Industry

MELL[illegible]TUTE
L[illegible]Y
JAN 31 1961
PITTSBURGH, PA.

Index Vol. 87 July-December, 1960

A.D.A. attacks A.M.A. position—745.
A.M.A. to study drug industry—31.
ATI Installs High-Speed Line—659.
Aar-Bern formed by Wander Co.—607.
Abbott vitamin bottle wins packaging prize—63.
Abernathy, Frank W.—501.
Abrams, George—503.
Abrams, George J. Resigns—355.
Ackerman, Alice—657.
Acne—540.
Acne: Skin Diabetes? by G. Prosperpio, Ph.D. and M. Capra, Ph.D.—612.
Adair, Eric—213.
Adams, Dr. Charles R.—499.
Advancing Therapy—100, 231, 386, 533, 684, 821.
Advertising—753.
Aerosol Division of the Chemical Specialties Manufacturers Association aerosol package awards contest—339.
Aerosol douche—477.
Aerosol formulation—771.
Aerosol Statistics 1959—44.
Aging of Skin by Bernard Idson, Ph.D.—314.
Aldrich, Edward E.—652.
Alessio, Dino, new export-import broker—659.
Alexander, James R.—354.
Alfaro, Dr. Victor R.—76.
Alicino, Joseph—206.
Allied Chemical Corporation's General Chemical Division—195, 485; expanding facilities—81; building in Elizabeth, N. J.—359.
Allied Laboratories, Inc. and The Dow Chemical Co. to merge—310.
Allied Laboratories Vaccines—161.
Allstadt, Louis M.—71; honored—508.
Altman, Murray—795.
Amebiasis—534.
American Can to make glass containers—31.
American Cholesterol Products Inc.—379.
American Cyanamid wins Packaging Institute's Corporation Award—637.
American Printing Co.—639.
American-Wheaton Glass Corporation formed—359.
Amic, Louis—789.
Amomum subulatum oil—676.
Amorosi, Leo J.—651.
Amsterdam, H. J.—359, 508; attends International Congress of Cosmetic Societies—355.
Anaflora—830.
Anameba—534.
Anderson, Harold—211.
Anderson, Paul J.—351.
Anesthetic, tripelennamine—685.
Animal health and nutrition—766.
Anonsen, Stanley H.—72.
Anorectic drugs—685.
Antacids—387, 680.
Antibiotics—822.
Antimicrobial—822.
Antimocrobial composition—379.
Antiperspirants—230.
Anti-Staph Synthetic Penicillin by Joseph Kalish, Ph.D.—472.
Appetite reduction—685.
Appetite suppressant—534.
April, Dr. Paul A.—355.
Archer, Dr. Sydney—795.
Armitage, H. D. Retires—75.
Armor, R. H.—206.
Armstrong Cork Company, Inc.—485; expands Dunkirk, Ind. glass container plant—360.
Armstrong Cork International, S.A. forms Armstrong Cork (Pty), Limited in South Africa—359.
Armstrong, Robert A.—499.
Arnar-Stone expands research laboratories—209.
Arnold, Charles L., Jr.—503.
Arrom, Robert F.—789.
Arscott, W. L.—206.
Artificial Sweetening of Liquid Pharmaceuticals by M. J. Lynch and H. M. Gross—324.
Ashby, Herbert E.—355.
Aspirin stability—679.
Atlas Powder Co.—637.
Attar of roses—394.
Auvil, John S.—501.
Avery, John E., Jr.—508.
Avery Label Co.—342.

KEY TO INDEX

1-132	July
133-278	August
279-426	September
427-576	October
577-720	November
721-870	December

Babe, Charles C.—75.
Bacsik, Ed—797.
Bacteriostat—379.
Baiter, Richard E.—501.
Baker Chemical Co., J. T.—508.
Baker, Norman—799.
Baker, William Burdell, Nonsystemic Antibiotics—172.
Bakon, Robert E.—503.
Baldridge, Harold D.—207.
Ballin, Dr. Stuart G.—795.
Balmain to Revlon—163.
Bancroft, Paul O.—793.
Bandelin, F. J., Dihydroxyacetone: Synthetic Versus Natural Sun Tan—462.
Bangs, F. N.—799.
Barmak, Leonard—206.
Barnet, Howard J.—351.
Bart, Peter, Bigger And Better Detail Forces—614; Pressures on Pharmaceutical Prices—755.
Barth, A. J.—79.
Bases For Permanent Hair Dyes by Marvin K. Cook—316.
Bastian, Benjamin F.—797.
Bauer, Julius P.—205.
Bauman, Harry F.—73.
Baumgarten, Miriam—657.
Baxter Laboratories—802; building in South Carolina—458; outlook—25.
Beardsell, Allyn C.—637.
Becker, Wilbur E.—791.
Beckley, Dr. John Henry—351.
Beckwith, Jr., Edmund R.—206.
Beem, Dr. J. R.—351.
Behr-Manning Company—485.
Bell, A. Richard—209.
Belmore, Frederick M.—789.
Bender, May—799.
Benenati, Frank G.—503.
Bengert, G. W. receives degree—79.
Bennett, Dr. Earl W.—793.
Bennett, Hugh—797.
Benning, Paul L.—207.
Bensinger, C. G.—651.
Benson, Dr. Wilbur M.—795.
Benzphetamine—534.
Berbardin Bottle Cap Co.—779.
Berger, H. M.—79.
Bergmann, Theodore G.—207.
Berls, Rudolph F.—81.
Bernstein, Dr. Jack—206.
Bertisch, Leo—791.
Betulenols—93.
Beyland, Richard O.—791.
Bezard, Louis returns—211.
Biddison, Mark M.—509.
Bigger and Better Detail Forces by Peter Bart—614.
Bishop, Harlan—802.
Bitrex—677.
Bittenbender, William P.—209.
Black, Alexander—351.
Blades, H. W.—205, 211
Blazey, Leland W.—205.
Blod, Francis, Design Associates—625.
Blum, Harold J.—795.
Bobst, Elmer H. accepts award for health contributions from Medical Society of the District of Columbia—76.
Boehling, Jerry—79.
Boerman, Mrs. Rebecca K.—793.
Bolger, Robert J.—209.
Bond, Dr. Glen C.—206.
Bonham, Kenneth A.—205, 211.
Boorland, William D.—793.
Booth, Helen L.—655.
Bowen, Thomas G.—791.
Boyer, Charles D., Jr.—793.
Boyer, Francis, The Generic Fallacy—176.
Boyer, Philip A., Jr., M.D.—795.
Brackett, Dr. Robert G.—503.
Bradley-Sun, Division of American Can Co.—63, 195, 339, 639.
Bradshaw, Thronton F.—207.
Brady, Thomas—79.
Braithwaite, T. G.—793.
Branford, Kenneth—501.
Branski, Edward A.—353.
Breck, Edward J.—213.
Brennan, John J.—353.
Brennan, Joseph I.—360.
Brennesholtz, Louis—353.
Breton, Armando, Jr.—799.
Brockway Glass Co.—625, 637.
Brown, George H.—207.
Brown, Jr., Clyde A.—652.
Brown, Richard F.—503.
Brown, Robert E.—205.
Brown, W. B.—206.
Browne, A. M.—354.
Brush, Alvin G.—211.
Bryant, F. Leonard—501.
Buckley, Christopher H.—353.
Bullington, E. L.—651.
Bunde, Carl A., Ph.D.—207; 351.
Burch, E. C.—79.
Burch, Ph.D., Homer A.—73.
Burnham, E. Lewis—501.
Burns—231, 685.
Burns, Dr. John J.—72.
Burnside, C. B.—79.
Burroughs Wellcome plant addition—458.
Bush, B. T.—353.

Caffrey, Patrick F.—205.
Cain, Cornelius K.—360.
Camilli, Francois—362.
Campbell, J. A., Evaluation of Sustained-Action Release Rates—620.
Cancer drugs—534.
Capra, M., Ph.D. and G. Proserpio, Ph.D., Acne: Skin Diabetes—612.
Carroll, Marie V.—657.
Cass, Thomas F.—75.
Cassell, Joseph H., Jr.—499.
Carbopol 934—230.
Carey, Paul J.—213.
Carnes, Herbert E.—205, 211.
Carroll, Albert—206.
Carter, Clark H.—351.
Carter Products, Inc.—53.
Carvis, James A.—500.
Cassullo, John L.—205.
Catapano, Miss J.—359.
Cather, Myers Bud—791.
Celanese Plastics Company's Royal Container Dept.—342.
Cellase 1000—379.
Celluplastic Corp.—485.
Ceragraphic, Inc.—625.
Chanel—475.
Chapman, David E.—206.
Chapman, W. Lansing—362.
Chemway buys Opthalmic Specialties—27.
Cheney, Bryant L.—791.
Chenoweth, Dr. Maynard B.—793.
Chesebrough-Pond's in Clinton—29.
Chesebrough-Pond's-Northam Warren—453.
Chlorothiazide—101.
Cholesterol—230; reduction—101.
Christian Dior—637.
Christofferson, Dr. Paul V.—355.
Chymar ointment—693.
Citronellol—818.
Citrus oils—93.
Clark, Dr. John Kapp—209.

COPYRIGHT 1960 BY DRUG MARKETS, INC.
PRINTED IN THE UNITED STATES OF AMERICA

Clark, June—657.
Clark, Ralph A.—354.
Clark, Robert—205.
Clark, Roscoe C. retires—797.
Cleary, Sylvester—79.
Cleland, Mrs. Mary.—793.
Clements, Keith—797.
Coatney, Donald—793.
Cochran box wins NPBMA prize—339.
Codell, Inc.—751.
Coe, Fred A., Jr.—499.
Cold-Wave Comb Applicator—183.
Cole, Lessing L.—213.
Colgate, W. B.—214.
Colgate-Palmolive Co.—639.
Color Additives For Cosmetics And Drugs by H. D. Goulden—756.
Colton Co., Arthur, moves eastern branch office —81; expands filling and pharmaceutical machinery manufacturing plant in Mancelona, Mich.—359.
Compounder's Corner—95, 229, 378, 527, 679, 825.
Compulsory licensing of drug patents—786.
Condon, Dolle—657.
Conley,Veronica L., Ph.D., director of the A.M.A. Department of Nursing—211.
Conney, Dr. Allan H.—72.
Connor, John T. appointed to the National Health Council's Commission on Health Careers—797.
Consumer Buying Trends in Toiletries by James O. Peckham—165.
Continental Can, Bradley-Sun Division—195; 639; Flexible Packaging Div.—779.
Continental Filling Corp.—183.
Contributions to Project Hope—310.
Cook, Marvin K., Bases For Permanent Hair Dyes—316; Hair Bleaches—468; Modern Oxidation Hair Dyes—764.
Cook, Roy Bird made honorary president of the American Institute of the History of Pharmacy—797.
Cooper, Franklin H.—499.
Coppertone Corp.—508.
Cosmetic Career Women elect executive committee—657.
Cosmetic Chemists' annual meeting—603.
Cosmetic colors—756.
Cosmetic costs—745.
Cosmetic Industry 1958, The—46.
Cosmetic refill packages—773.
Cosmetics pace rise in collapsible metal tube usage—485.
Cotte, Dr. J.—359.
Coty, Inc.—637.
Courtney, Richard C.—75.
Cowles, C. J.—653.
Crago, H. Carman—501.
Crayton Laboratories to Suppositoria Laboratories—508.
Creagan, Donald R.—355.
Creams—826; anti-wrinkle—829; foundation—679; perfuming—92.
Creativity In Research by Robert L. Goldemberg—762.
Crescenta, William C.—76.
Crest Toothpaste—386.
Crichley, W. A.—206.
Crowner, Robert P.—499.
Crysler, Frederick S.—75.
Cubeb camphor—93.
Cullen, Agustin S.—799.
Cullen, Richard P.—791.
Cunzeman, John L.—209.
Cupps, James H.—791.
Curtis, Helene—639.
Cutter Laboratories, Inc.—751.
Cyclophosphamide—534.

DCAT elects James Day—505; 655.
DCAT: Threescore and Ten by Ted Klein—42.
Dachs, David, The Pharmaceutical Revolution down on the Farm—766.
Daggett & Ramsdell, Inc.—63.
Daggett, Ross LeB.—362.
Dahl, R. J.—214.
Daley, Richard H.—791.
Dames, Robert P.—355.
Danbury—63.
Danco, G. Peter—213.
Daniels, Morton—213.
Davis, Lewis C.—797.
Davis, William G.—652.
de Acedo, Salvador Sanz—76.
Deakin, Harold C.—81.
Deanol—685.
Decker, Peter F.—797.
Declining dihydrostreptomycin market—453.
Dedrick, Alec J.—207.
DeHart, Cliff—651.
Dehner, Harold P.—651.
De Hope, Joseph J.—353.
de Laire, Antoine visits U.S.A.—657.
Demuth Glass Works, Inc.—63.
Denney, Jr., William F.—213.
Dental survey—608.
Dentifrice—386.
Dentinger, Charles—79.
Denton, Edward B.—653.
DePree Company, The—195.
Design of Oral Sustained-Action Dosage Forms by Joseph V. Swintosky, Ph.D.—464.
Despres, Jean TGA president—213.
Detail men—614.
Deter, M.D., Arthur S.—73.
Detergent—830.
Dewell, Wilbur E.—791.
Dey, Richard A.—503.
Diaphene—379.
Dickens, Robert Sidney elected president, Packaging Designers Council—799.
Di Cyan, Erwin, Ph.D., Side Effects of Drugs—318.
DiGiacomo, Victor, Pressure Packaging—771.
Diglycerides—230.
Dihydroxyacetone—95.
Dihydroxyacetone: Synthetic Versus Natural Sun Tan by F. J. Bandelin—462.
Dilarush, Carleton C.—213.
Dilger, J. C.—653.
Dior, Inc., Christian—775.
Direnga, Otto G.—793.
Di Scala, Eugene—355.
Disinfection, skin—693.
Diuretics—101.
Diuril Creates A New Market by Milton Moskowitz—758.
Dixon & Parcels Associates, Inc.—49, 342.
Doan, Herbert D.—793.
Dobeckmun Co.—339, 629.
Dodd, James P.—651.
Dodge, Sherwood—795.
Doerschuk, Dr. A. P.—651.
Doetsch, Gretner & Cie—342.
Dollin Corp.—63.
Dome Chemicals Acid Mantle Creme—163.
Dominica, Joseph R.—71, 657.
Donnalley, Dr. James R.—75.
Dooley, Dr. Thomas A.—76.
Dotres, Anibal J.—205.
Double-Walled Polypropylene Jar—331.
Douglass, Mrs. Dorothy—508.
Dow Chemical Co., and Allied Laboratories, Inc. to merge—310.
Dow names expanded plastic "Ethafoam"—63.
Dowling, Fenton J.—499.
Downey, Arthur H.—81.
Drake, Ruth—657.
Driscoll, C. U.—351.
Drubulis, Dr. Arge—73.
Drug absorption—533; advertising—749.
Drug and cosmetic TV billings—161.
Drug cost insurance—607.
Drugs counterfeiting—749; distribution—777; side effects—318.
Drug Price Index—470.
Drug Research Corp.—747.
Drugstore sales keep rising—605.
DuBarry—779.
Ducey, Fred B.—500.
Duellman, M. E.—79.
Duggan, Michael L.—207.
Duncan, Robert L.—503.
Dundas, Fred N. re-elected by GCMI—76.
Dunham, James R.—354.
Dunlap, Frederick L.—660.
Dunning, Kenneth B.—791.
Durkin, Dr. John W., Jr.—355.
Durrer, E. R.—655, 799.
Duveen, Dennis receives History of Chemistry award—505.
Dvorkovitz, Vladimir—789.
Dyna-Foam Corp.—342.

Eagan, J. L.—79.
Eagan, John M.—791.
Eastern Pharmaceutical Wholesalers Association established—508.
Eastman Chemical construction—214.
Eau de cologne—524.
Ebullient Cosmetic Industry, The—322.
Edema treatments—684.
Edpedrine gels—230.
Edwards, Mauri—351.
Edwards, Wayne E.—353, 499.
Egolf, Charles P.—206.
Ehrlich, Robert L.—351.
Ehrman & Reiner, Inc.—339.
Eidswick, Harry N.—500.
Eilers, Dr. L. K.—652.
Electric razors—778.
Elliot, J. R., Men's Fragrances: From Koeln to Florida—610; Formulations from the Classic Cologne to Modern Blends—760.
Ellis, Dr. Stanley—501.
Embassy Laboratories moves to new quarters—81.
Embree, Dr. Norris D.—795.
Embryo Hydrolysates—527.
Emery, John J.—206.
Emholz, James V.—503.
Emson Research, Inc.—485.
Emulsifiers—379.
Emulsion stability—689.
Emylcamate—387.
Endo Laboratories—63.
Enginger, Reinhart, D.D.S.—206.
Enjay expands benzene plant—659.
Enzie, William H.—637.
Erickson, Dr. Raymond—355.
Essential oil oxidation—93.
Estrogen antagonists—822.
Ethicon—339.
Eucalyptus oils—819.
Evaluation of Sustained-Action Release Rates by J. A. Campbell—620.
Everson, J. William elected president of C.M.R.A.—76.
Experimental Determination of Sustained Action by Earl L. Myers, Ph.D.—622.
Extruded Plastics, Inc.—195.

FDA, ask broadened powers for—601; bans colors—31; color regulations—605; investigation —157; investigation of—747.
FTC, Actions—751; and direct sellers—601; curbs purchasers—305.
Farres, Alberto—799.
Factor & Co., Max—195, 639.
Falk, Dr. Ralph—660.
Family physician—608.
Farber, Isadore—72.
Farnesoic acid—101.
Farrell, James—79.
Fatty acid sulfonated amides—96.
Feagley, Joseph C.—205.
Fecke, Mary L.—793.
Fedoruk, John C.—207.
Feld, Charles A.—637.
Feldman, Jack—795.
Feminine hygiene powder in single-dose form —342.
Ferguson, James T.—206.
Fergusson, J. M.—75.
Ferracone, W. J.—75.
Fieger, Harry M.—802.
Filler's Role in Pharmaceutical Aerosols, The by Alfred P. Mason and John W. Hart—38.
FINANCIAL STATEMENTS
Abbott Laboratories—752.
American Cyanamid Co.—752.
American Hospital Supply Corp.—752.
Baxter Laboratories, Inc.—752.
Chemway Corp.—752.
Cutter Laboratories, Inc.—752.
Factor & Co., Max—752.
Johnson & Johnson—752.
Lilly & Co., Eli—752.
Mead Johnson & Co.—752.
Norwich Pharmacal Co.—752.
Olin Mathieson Chemical Corp.—752.
Pfizer & Co., Inc., Charles—752.
Revlon, Inc.—752.
Rexall Drug & Chemical Co.—752.
Findley Co., F. G.—63.
Fine Chemicals of Canada, Ltd., to Penick—214.
Finger, Dr. Kenneth F.—71.
Fink, Karl—799.
Finn, Jack—205.
Finn, Parker C.—797.
Firestone, John M., Ph.D., A Price Index For Drugs—470.
Fischer, William Franklin—660.
Fischelis, Dr. gives Rennebohm Lectures—660.
Fishbein's medical predictions—455.
Fisher, Dr. James—351.
Fistere, Joseph—789; retires—797.
Fitzgerald, Fred J.—206.
Flaherty, John J., Jr.—791.
Flanagan, Dr. Arthur D.—351.
Flannery, Donald J.—206.
Flatow & Co., R. E.—213.
Fleming, James F., M.D.—651.
Fleming, Dr. Thomas C.—652.
Flemming and the FDA—29.
Fleuroma, develops new research program—81; plant opened—509.
Flexible Packaging Award Winner, Glo-Pak—629.
Florida's drug and cosmetic registration—457.
Folic acid regulations—159.
Ford, Henry L.—652.
Foresta, Louis—795.
Fornero, George M.—73.
Fort, William L.—213.
Foth, Robert—79.
Foundation creams—679.
Fox Specialty Company, Inc. equipped for injection-molded plastics—360.
Frank Organization, The Walter—485.
Frascati, Dr. Anthony—508.
French, Miriam Gibson-Pierre Harang—211.
Freund, Dr. Jack—354.
Friedemann, William C.—797.
Friend, Sydney—799.
Frost, Russell B.—653.
Fuhrman, Robert J.—207.
Fuller, George—657.
Fullerton, J. B.—206, 211.
Funderburk, Dr. William H.—71.

G. E. Expands Silicones—214.
Gaidzik, Joseph—501.
Gampfer, Nelson M.—508.
Garde Drug Co. Inc. to Old Empire—508.
Gardner, Stephen V.—353.
Garwood, Reginald E.—359.
Gas Sterilization by John J. Perkins—178.
Gattefosse, M.—359.
Gattefosse S.P.F.A. of Lyon, France—359.
Gause, Wilbur M.—791.
Geiger, Burns—71, 499.
Gelb, Richard L.—791.
Generic Fallacy, The by Francis Boyer—176.
Geraniol—818.
Gerstacker, Dr. Carl A.—793.
Gerzso, Federico O.—799.
Gibson, Augustus, M.D.—353.
Gibson, Lee L.—651.
Gift Market—773.
Gilfoil, Dr. Thomas C.—795.
Givaudan, Andre—76, 799.
Givaudan Argentina, S.A.—508.
Givaudan Constructing in Spain—76.
Givaudan Iberica S.A.—802.
Givaudan, Xavier—799.
Gladstone, Dr. M. M.—501.

Glover—Davis Co.—629.
Gluck, Michael J.—789.
Glynn, Kennyth—793.
Glynn, Thomas M.—793.
Glyceryl monostearate—825.
Glyco Chemicals appoints Quad Chemical Corp.—802.
Goldberg, Lloyd B.—653.
Goldemberg, Robert L., Creativity In Research—762.
Goode, S. T.—359.
Goodpasture, Dr. Ernest W.—509.
Gould, Barbara—639.
Gould, Edmond J.—499.
Gould, Jack—79.
Goulden, H. D., Color Additives For Cosmetics And Drugs—756.
Govier, Dr. William M.—207.
Grafer, Hal—213.
Graff, Gladys—793.
Graff, William T., Jr.—793.
Graham, John J., Packaging Pharmaceutical Aerosols—36.
Grant, Jr., George—651, 657.
Gray, Dr. Alan—653.
Greber, Arthur C.—71.
Green, Benjamin—791.
Green, Charles—791.
Greenspon, Herbert M.—73.
Greer, William J.—789.
Gribou, Dr. Henry G.—71.
Griffith, Ivor—76.
Grisofulvin—533.
Griswold, Leavitt E.—791.
Grivas, Dr. John C.—795.
Grobe, William F.—797.
Gross, H. M. and M. J. Lynch, Artificial Sweetening of Liquid Pharmaceuticals—324.
Gudgel, John L.—355.
Guenther, Dr. Ernest, honored in England—79; 205.
Guillot, B.—359.
Guinivan, Thomas W.—795.
Gullander, Werner P.—501.

HNI office moves—509.
Hagerty, Harry C.—351.
Hair Bleaches by Marvin K. Cook—468.
Hair Dye Bases—316.
Hair Dyes, Modern Oxidation—764.
Hair Waving—378.
Haligas, Jack—797.
Hall, Edwin M.—360.
Hallmark Distributors, Inc.—751.
Hamilton, Dr. Pat B.—795.
Hamor, William T., Jr.—353.
Hancock, John—508.
Hand preparations, perfuming—818.
Handelsman, Milton—355.
Harrington, Dr. Charles D.—72, 789.
Harris, S. W.—353.
Harrison, J. W. E. receives Annual Alumni Award, Philadelphia College of Pharmacy & Science—76.
Hart, John W. and Alfred P. Mason, The Filler's Role in Pharmaceutical Aerosols—38.
Hartley, Kenneth W.—205.
Havemeyer, Dr. Ruth—73.
Hazel-Atlas Glass—63.
Hazelton Laboratories expands chemistry dept.—660.
Healy, J. H.—802.
Hegarty, Dr. Paul C.—503.
Heine, R.—79.
Heines, Edward J.—205.
Heitner, Elizabeth—503.
Helms, James R.—797.
Henriksen, Eve—657.
Henske, John M.—793.
Henthorne, Dr. Robert D.—797.
Herlong, E. S.—214.
Hertzel, Roger H.—205.
Hester, Joseph P.—797.
Hetreck, John Philip—793.
Hetterick, Raymond D.—789.
Hewlett, L.—79.
Hennessy, R. J.—79.
Heptig, Jack T.—71.
Herrera, Lidcay—205.
Herzog, Max L.—508
Hexachlorophene, skin adsorption—692.
Hibbott, Dr. H. W.—508.
High school students visit Hoffmann-La Roche Plant—509.
Hill, Dr. Richard A.—355.
Hinshaw, Dorothy—799.
Hodes, Leonard—797.
Hoffmann-La Roche—339; 509.
Hohing, Conrad—797.
Holland, Dr. Madeline Oxford resigns—657.
Holland-Rantos Co.—342.
Hopkins, S. M.—500.
Hormone absorption—830.
Hormones and pigmentation—382.
Horn, Raymond E.—362.
Hornbostel, Charles C.—791.
Horner, Hugh—79.
Horsey, Robert A.—76; chairman, essential oils division, Travelers Aid Society—508.
Hough, J. G.—353.
How Many Retailers? by Frazer V. Sinclair—311.
Hueper, Dr. W. C.—527.
Huerta, Francisco—799.
Hughes, J. A.—206.
Hurmence, Dr. Howard H.—207.
Huyck, C. Lee—353.
Hydroquinone monobenzyl ether—830.
Hypodermic needle—100.

Idson, Bernard, Ph.D., Aging of Skin—314.
Imco Container Corp.—331, 362; appoints Wilson Plastic—659.
Interim Sales & Earnings—164.
International Flavors & Fragrances wins third prize in the safety award contest of the National Safety Council—360.
International Packaging Machinery Show in Paris—195.
Irwin, W. E.—75.
Isermann, Centa—657.
Isopropyl myristate—229.
Iso-Sol Co. to Chemway Corp.—27.

Jackson, Bette—657.
Jacobs, Frank T.—508, 789.
Jacobs, Isador M.—207.
Jacobson, Abraham S., M.D.—209.
James, Dennis—799.
Jann, Dr. Adolf W.—71.
Jarowski, Dr. Charles I.—799.
Jarvis, Dr. A. E.—351.
Jasmine oil—93.
Jatul, Dr. Bernard B.—351.
Jenal, Robert L.—75.
Jenkins, Mervyn M.—354.
Jensen, Howard T.—362.
Johnson & Johnson—342.
Johnston, Arthur E.—213.
Jonap, Burton A.—651.
Jones, Jr., A. Carrloo—209.
Jones, Wilbur R.—72.
Jorgensen, Dr. Helmuth E. M.—795.
Judelson, Harold—799.
Junod, Charles F.—213.

Kalish, Dr. Joseph—360.
Kalish, Joseph, Ph.D., Anti-Staph Synthetic Penicillin—472; Manipulated Molecules—609.
Kalish, Samuel—75.
Kaltenbronn, Dr. James S.—355.
Karl, Wilhelm, Prinz von Preussen—799.
Katz, Dr. Martin—793.
Kefauver Committee and Antibiotics—455.
Keeley, C. R. (Bud)—359.
Keenan, Jack H.—354.
Keigwin, Henry J.—355.
Keller, I. Wayne—359.
Keller, Sheldon W.—501.
Kelley, Chad—797.
Kenly, Robert G.—354.
Kerner, Melvin W.—503.
Kerr, Joseph W.—353.
Ketrick, Paul J.—75.
Kimble Glass Co.—63.
King, Charles B.—793.
King, Dr. John A.—791.
King, Walter G., Jr.—793.
Kinney, Dr. Roland W.—355.
Kinsley, Lewis H.—353.
Kintner, Earl W., Science in Advertising: The Distribution of Responsibility—753.
Kirkby, N. R.—351.
Klamer, Dr. Bernard—793.
Klein, David L.—351.
Klein, Ted, DCAT: Threescore and Ten—42.
Kline, Mahlon N., Science Building—27.
Knaebel, Jr., Irvin G.—207.
Kocher, Frederick L.—71.
Kodak's DPI moves—81.
Kohlstaedt, Kenneth G., M.D.—652.
Kolar, George—359.
Kolbas, J. M.—79.
Kolin, Oscar—213.
Koppers Company, Inc.—485.
Kosinski, Joseph V.—499.
Kotuby, Paul M.—354.
Kratina, Jerome T.—354.
Krebs, William A.—797.
Krouse, Charles O.—793.
Ku, Mrs. Katherin Y.—795.
Kuhn, Andre—799.
Kutner, David B.—209.

Lacazette, A. J.—353.
Lachner, Marshall S.—207.
Lambert-Hudnut—63.
Lambert, Marie—503.
Lamour Beauty Salon, Dorothy—777; opened—802.
Landee, Dr. Franc A.—353.
Langner, Fred W.—637.
Langsett, Robert C.—354.
Langstroth, T. A.—209.
Langenau, Edward E.—205.
Lanolin Plus—751.
Laporte, William F.—205, 211.
LaPrelle, Sr., Thomas—71.
Larrick asks law changes—32.
Lascoff, Dr. Frederick—799.
Lassiter Corp.—342.
Laurel berry oil—394.
Lauber, Alan L.—651.
Law, Dr. George H.—503.
Lebanon Paper Box Mfg. Co.—49.
LeBoeuf, Harold W.—75.
Lederle-Kefauver—309.
Lederle Laboratories—781.
Leedpak, Inc.—629.
Lehn & Fink Acquires Noreen—163.
Leitzow, Herman—777, 778.
Lelong—775.
Lemon Oil—394.
Leonard, Jack—79.
Leonard, Thomas—793.
Leonhardt, Frederick H., Jr.—205.
Lermer Plastics doubles production facilities—659.
Lesch, George H.—209.
Lewis, Charles A. receives Packaging Institute's professional award—637.
Liberal trend in obtaining patents—644.
Librium: A Marketing Case History by Milton Moskowitz—460.
Lightfoot, Charles L.—353.
Ligocki, Larry—503.
Lilly wins round against New Jersey—749.
Linalol—818.
Linden, Leo Laboratories, Inc.—79.
Lindsey, Joseph H.—797.
Lipsticks—245, 826.
Little, Edward H.—209, 211.
Live—virus polio vaccine approved—307.
Livesay, G. B.—799.
Loeffler, George—791.
Long, R. S.—355.
Lucky Tiger buys York Pharmical—27.
Lueders & Co., George is 75—660; opens new offices—359.
Lueders Director Joins Twenty-Five Year Club—657.
Lumelite Corp.—779.
Lundigan, Robert E.—503.
Luter, Edward R.—651.
Luther, Dr. William C.—73.
Luviano, John J.—791.
Lynch, M. J. and H. M. Gross, Artificial Sweetening of Liquid Pharmaceuticals—324.

Mace, Richard M.—500.
Macek, Dr. Thomas J.—499.
MacFarland, D. F.—353.
Machamer, William O.—791.
Mackay, Dr. Donald A. M.—207.
Mack Moulding Co.—63, 625.
MacLaughlin, E. H.—76.
Macrocyclic musks—238.
Magid, Dr. Louis—72.
Magnesol—680.
Making Sustained-Action Oral Dosage Forms by Manford J. Robinson—466.
Maldorado, Dr. Eduardo—71.
Malmstrom Chemical Corp. acquires N. I. Malmstrom & Co.—163.
Manipulated Molecules by Joseph Kalish, Ph.D.—609.
Mann, Edgar—79.
Manner, Dr. Richard J.—501.
Man-Tan is Patented—320.
Man-Tan patent—747.
Maple, Frank E.—500.
Marche, Pierre, Inc.—751.
Marcy Laboratories, Inc.—639.
Marketing, Diuril—758.
Markley, Margery—799.
Marriott, Dr. Robert Henry receives 1960 Medal Award of the Society of Cosmetic Chemists—655.
Martin, Benson B.—353.
Martin, Jean R. L., Raw Materials and Product Quality—4*9.
Martin, Joseph T.—797.
Martin, Warren elected—505.
Martinot, Paul J.—213; 799.
Marton, Dr. Oliver L.—508.
Martz, Bill L., M.D.—652.
Mason, Alfred P. and John W. Hart, The Filler's Role in Pharmaceutical Aerosols—38.
Mass, Edward R.—351.
Massengil Co., S. E.—342.
Master Merchandise Corp.—751.
May, William F.—71.
Mayham, Steve—213.
McCameron, Maurice F.—789.
McCarthy, Richard H., Jr.—499.
McClellan, John J.—205.
McConnell, W. H.—206.
McCurdy, Walter R.—354.
McGovern, Jr., Thomas R.—653.
McFadden, Andrew G.—359.
McGuire, Judy—799.
McKeen, John E., chairman of the Ethical Drug Industry Committee of Project Hope—211.
McKesson & Robbins, Inc. opens new wholesale drug branch—802.
McLester Award to Beatrice Finkelstein—802.
McManus, George—207.
McNamara, Leo J.—354.
McQuilkin, James Baxter—499.
Mead Johnson buys Brazil firm—31.
Measday, James P.—655.
Measles vaccine test by New York City—457.
Meckley, LeRoy S.—354.
Medstore Plan, Inc.—608.
Memphis D. & C. Club celebrates fifth year—79.
Mendell, Edmund—72.
Menefee, Samuel W., Jr.—362.
Menlo Park Laboratories—477.
Mennen Co., The—625, 751.
Men's Fragrances: From Koeln to Florida by J. R. Elliott—610; Formulations from the Classic Cologne to Modern Blends by J. R. Elliott—760.
Meralluride—101.

Merck & Company, Inc.—195.
Merck Sharp & Dohme—387.
Merck Sharp & Dohme Limited, new manufacturing & research plant—81.
Merkel, Frederick G.—660.
Merkl, Ellis F.—205.
Merrell inaugurates Quarter Century Club—508.
Merrill, Stanley A.—500.
Merritt, L. D.—79.
Metal Fabrications, Inc.—49.
Metal squeeze tubes up—63.
Meurinne, Eduardo—799.
Michelini, Richard J.—206.
Miles Chemical citric acid plant in Israel—453.
Miles consolidates marketing—75.
Miles, Harry E.75.
Milk for burns—231.
Miller, Ralph T., Jr.—353.
Miller, Richard W.—655.
Miller, Thomas R.—503.
Mink, Loretta—793.
Minnesota Mining & Manufacturing Co. and Warner-Lambert Pharmaceutical Co. to merge —310.
Miskel, John J.—72.
Mitchell, William Donald—354.
Modern Oxidation Hair Dyes by Marvin K. Cook—764.
Mohr, Jack—799.
Mohrman, Robert A.—500.
Molecule Manipulation—609.
Moliter, Hans retires—505.
Montgomery, Robert W.—351.
Molloy, Bruce G.—501.
Moon, Arthur P.—207.
Moos, William—795.
Morehead, John R.—354.
Morehouse, Larry C.—653.
Morningstar-Paisley, Inc. industrial adhesives plant—508.
Morton, Robert G.—353.
Moskowitz, Milton, Librium: A Marketing Case History—460; Diuril Creates a New Market—758.
Moss, Arthur P.—503.
Mulford, Roy H.—651, 789.
Munson, Robert W.—359.
Murison, Richard K.—652.
Murphey, Du Pont—789.
Murphy, William T.—355.
Mushett, Dr. Charles W.—653.
Musks—238.
Myers, Earl L., Ph.D., Experimental Determination of Sustained Action—622.

N.B.C. medical advertising deferred—32.
Naar, Jon—795.
Nack, Herbert P.—789.
Nash, Dr. Harold—351.
National Association of Drug and Allied Sales Organization formed—655.
National Flexible Packaging Assn.—779.
National Safety Council cites Winthrop Labs. —657.
Naylor, Charles W.—206.
Nerol—818.
Nesbitt Associates—195.
Nesbitt, Saul—799.
Netter, Dr. Frank H.—355.
Neuman, G.—63.
Nevins Co.—625.
New Buffalo office for Eastman Chemicals Division—509.
New Color Law, The by Samuel Zuckerman, Ph.D.—170.
NEW COSMETICS
Lanolin Plus, Miracle Nail Enamel—799.
New Deodorant Packaging Line, A—53.
New fluorohalocarbon film—195.
New Jersey Zinc Company establishes district sales office in Atlanta, Georgia—359.
NEW MACHINES
Airshelters, Inc., airhouse—371.
Applied Physics Corp., adiabatic calorimeter—91.
Becton, Dickinson & Co., radioisotope instruments with permanent identification —716.
Boxboard and Folding Carton Division of Continental Can Company, carton former and closer—670.
Bucket Elevator Co., The, sanitary bucket elevators—89.
Chem Flow Corp., corrosion-resistant check valve—811.
Clark Bros. Company, Air Compressors —516.
Colt Packaging Machinery Co., The, Redesigned Printer—91.
Colton, Arthur Co., volumetric rotary filler—809.
Dean Products, Inc., double-embossed heating-cooling panel—375.
Dennison Manufacturing Co., method of applying decalcomania labels automatically at high speed to squeeze bottles—89.
FMC Pacaking Machinery Division, high-speed carton filler—809.
Fisher Scientific Co., laboratory glassware washer—375.
Frazier and Son, nylon bucket for materials handling elevator—375.
Gifford-Wood Co., Eppenbach Micro-Mill —373.
Gisholt Machine Company, neck wrap labeler—715.
Gottscho, Adolph, Inc., aerosol can coder —670; automatic plastic-bottle coder—713; conveyor-line coder—375; heat-resistant strip-package imprinter—516.
Industrial Marking Equipment Co., Inc., pneumatically controlled coder—809.
Iron Tower Works, dry feeders—716.
Johnston & Jennings Co., The, dehydrators—811.
MRM Company, Inc., automatic container feeder—516; compact labeler—91; versatile spout filler—670.
Markem Machine Company, high-speed label printer—670.
Mixing Equipment Co., high-speed portable mixers—375.
Moisture Register Company, electronic moisture register—516.
Morehouse-Cowles, Inc., variable-speed dissolver—715.
National Instrument Co., Inc., The, pump attachment for viscous liquids—91.
Pack-Rite Machines, poly bag top cut-off sealer—811.
Parr Manufacturing Corp., ground detector & fault finder—91.
Permutit Water Conditioning Inc., heavy-duty water softener—811.
Pfizer & Co., Inc., Chas., hardness tester—91.
Popper & Sons, Inc., new marking machines, gravity fillers—373.
Ross, Charles & Son Co., Inc., stationary high-speed disperser—713.
Russell Constructions Ltd., Russell mill —809.
Schutte and Koerting Co., Instrument Division, magnetic and electronic alarm rotameters—373.
Scientific Filter Co., portable air-operated capper—809.
Spincraft, Inc., automatic speedfilter—373.
Sterling Fleishman Co., power-operated drum dumpers—89.
Sturtevant Mill Company, two-inch laboratory jet mill—716.
Super Speed, Inc., automatic folder—516.
Thomas Engineering Co., coder-printer using solid ink—373.
Toledo Scale Corp., micro-printweigh scale—373.
Ultrasonics Corp., self-adjusting ultrasonic cleaner—91.
Vac-U-Lift Company, Versatile Vacuum-Hoist Attachment—715.
Wallace & Tiernan Inc., low-capacity metering pump—811.
Weston Instruments Division, Daystrom, Inc., mechanical recorders—670.
NEW PACKAGING
Aerosol Corporation of the South, Fashionette Petite—769.
Dyna-Foam Corp., Dyna-foam, cushioning foam plastic—342.
Dupont, Delrin—779.
Kimble Glass Co., optiseal stopper vial—779.
Safe-T Flo-Pak—779.
NEW PERFUMES
Avon, Buttons'n Bows—779.
Coty, Inc., L'Or—779.
New Product Competition—749.
Nice, George H.—499.
Nichol, Iven G.—637.
Nielsen, Carl—509.
Nolen, Herman C., The Outlook For Proprietaries—168.
Nolen, Herman C., chairman of the Proprietary Drug Committee of Project Hope—211.
Nonionic surfactants—680.
Nonsystemic Antibiotics by William Burdell Baker—172.
Nordin, Dr. Ivan C.—793.
Noreen to Lehn & Fink—163.
Norris, O. P.—79.
Norwich acquires controlling interest in Orgahell, N. V.—163.
Nosco Plastics, Inc.—195.
Nutress Laboratories—339, 639.
Nutrilite Products, Inc.—777.

O'Brien, Frank, Jr.—500.
Odor Theory—676.
O'Donnell, William F. B.—209.
O'Hara, James M.—499.
Ointments—229.
Old Empire acquires Garde Drug Co. Inc.—508.
Olive Tablets and Beechams Pills advertising —27.
Ondetti, Dr. Miguel Angel—652.
O'Neill, Robert H.—207.
O'Neill, William T.—351.
Oral health grant—164.
Orange oil—394.
Orcutt, C. C.—802.
Ortho Pharmaceutical Co.—339.
Ottesen, Harold—354.
Ouellette, Philip—209.
Outlook for Proprietaries, The by Herman C. Nolen—168.
Owen, Jr., Fletcher B.—209.
Owens-Illinois Glass Co.—342, 485, 639.

PWA offers associate memberships—458.
Packaging Institute's Annual Forum—637; Packaging Forum—339.
Packaging Pharmaceutical Aerosols by John J. Graham—36.
Packaging Services, Inc.—485.
Page, Jr., Edward C.—73.
Painter, Curtis N.—205.
Pancic, Dr. Francis—795.
Pando, Ramon—799.
Paris Cosmetics sold to Milton M. Spitalny—213.
Parke, Davis & Company opens new distribution center—359.
Parker, Jr., Sam T.—73.
Parker, Dr. Robert P. appointed vice-chairman of the Research and Development Section of the Pharmaceutical Manufacturers Association —359.
Patent applications as filed should be complete —346.
Patoka, Donald R.—793.
Paul, Albert S.—360.
Pearce, Arthur—205.
Peckham, James O.—213.
Peckham, James O., Consumer Buying Trends In Toiletries—165.
Peerless Tube Co.—49, 63, 171, 195.
Pender, John C.—205.
Penick, Albert D.—205.
Penick, Jr., S. Barksdale—205.
Penick, S. B. & Company completes expansion in Newark, N. J .antibiotic facilities—359.
Penick, S. P. acquires Fine Chemicals of Canada—214; division moves—81.
Pennoch, Charles A.—213.
Pennsalt Chemicals Corp.—777; Atlanta plant —213.
Perfumer's Shelf—92, 238, 394, 524, 676, 818.
Perfumery course—157.
Perfumes for men—239.
Perfuming creams—92; depilatories—395.
Perilla oil—92.
Perkins, John J., Gas Sterilization—178.
Permanent waving—826.
Perry Brothers, Inc.—213.
Pfaudler Company, Division of Pfaudler Permutit Inc.—195.
Pfizer dedicates Medical Research Laboratories —659.
Plough, Inc.—747.
Pharmaceutical Industry 1958, The—33.
Pharmaceutical prices—755.
Pharmaceutical Revolution Down On The Farm, The by David Dachs—766.
Phar-Med Inc. to Warren Teed Products Co.—32.
Phibbs, Harry C.—509.
Philips expands in pharmaceuticals—453.
Phillips, Dr. Donald K.—795.
Phillips, John—205.
Physician increase—161.
Pierce's Proprietaries, Inc. to Roberts Bros.—214.
Pike, Charles W.—653.
Pinocarveol—93.
Plastic heart for doctors—195.
Plastics—773.
Plechner, Dr. S.—359.
Poeller, W. W.—214.
Pogge, M.D., Raymond C.—71.
Polak, Bernard—508.
Polak & Schwarz changes name to International Flavors & Fragrances I.F.F. (Nederland) N. V.—657.
Pope, James—795.
Porcing, Carl—73.
Porter, J. Edwin—501.
Poses, J. I.—213.
Posternack, J. M., M.D.—206.
Potter, David—793.
Poultry drugs—231.
Potter Drug & Chemical Corp.—639.
Powers, Sr., John J.—660.
Powers, Justin retires—505.
Powers, Raymond J.—73.
Powers, Thomas E.—791.
Preiser, Marvin F.—71.
Preserving cosmetics—543.
Pressures on Pharmaceutical Prices by Peter Bart—755.
Pressure Packaging by Victor DiGiacomo—771.
Preston, Ted D.—72.
Preventive Medicine In Animal Health by Jack M. Smith—174.
Price Index For Drugs, A by John M. Firestone, Ph.D.—470.
Procter & Gamble—183.
Product liability—305.
Proprietary names—163.
Proserpio, G., Ph.D. and M. Capra, Ph.D., Acne: Skin Diabetes?—612.
Prutton, Dr. Carl F.—500.
Putnam, Dr. Mark E.—793.

Quinn, Garth H.—499.
Quinn, John K.—797.
Qunn, William J.—655.

R.I.T.A. Chemical Corp.—359.
Radar-Medical of Rome, Italy—195.
Ransom, Richard C.—791.
Ransom, William J.—508.
Ravetllat, J.—76.
Raw Materials And Product Quality by Jean

R. L. Martin—459.
Rawson Drug to Strong Cobb Arner—607.
Reader's Digest—745, 773.
Realistic Co. to Revlon, Inc.—31.
Reardon, Jim—76.
Reeves, Noble retires—505.
Regulski, Francis J.—501.
Reheis Co.—387.
Reheis, Daniel C.—651.
Reheis, Daniel H.—213.
Reich, Dr. Irving—73.
Reid, Herbert G.—499.
Reiner, Otto R.—75.
Reiss, Carroll R.—207.
Research information—762.
Research management—386.
Retailers-perfumes, cosmetics—311.
Revlon—181; acquires Balmain—163; acquires Realistic—31.
Rex, Clarence B.—353.
Rexall Drug Co.—63, 508; buys SchenLabs Pharmaceuticals, Inc.—29; diversifies further —163.
Rexall Chemical Company and El Paso Natural Gas Products Company launch joint venture for petrochemicals—360.
Rhea, Lawrence V.—71.
Rhoads, William S.—209.
Rhode Island polio—161.
Rice, Raymond M., M.D.—652.
Rich, Judge Giles C.—644.
Richardson-Taylor—342.
Riker, Irving—71.
Ring, Robert—211.
Risdon Manufacturing Co.—183, 477; adds Plastics Division—81.
Ritchie-Chesebrough-Pond's hair cream litigation—307.
Ritchie Company Changes Name to Beecham Products, Inc.—659.
Ritter, Robert E.—75.
Ritts, Fred M.—359.
Roberts, Keith—797.
Robertson, William L.—355.
Robinson, Manford J., Making Sustained-Action Oral Dosage Forms—466.
Robinson, Mel—73.
Rocha, Antonio, Jr.—799.
Rohrmann, George J.—76.
Roman, Harold M.—501.
Rorer, new plant site—605.
Rose alcohols—818.
Rose oxide—239.
Rosenberg, Milton—499.
Roth, Donald—206.
Roush, Dallas—211.
Rowan Printing Co.—342.
Rowley, William L.—503.
Rubefacients—540.
Rupp, Dr. Frank, Jr.—501.
Rush, John Votel—355.
Russian perfumes in Britain—749.
Ryan, George R. appointed to Planning Council, American Management Association's Packaging Division—799.
Ryan, Jack D.—653.

SCC Meeting—527.
SCC Seminar 1960—616.
SK&F wins Diana NWDA Award—660.
Sahlman, Jack—789.
St. John's University's College of Pharmacy, Pharmacy Congress—799.
Salomon, Andre—799.
Sandalwood oil—524.
Sandela GD—524.
Sanderson, David E.—359.
Sappenfield, R. G.—655.
Sassano, Mrs. G.—76.
Sayers, Dr. Ross V.—503.
Schaap, Murk gets Merck Sharp & Dohme Fellowship—31.
Scharwath, John A.—209.
SchenLabs bought by Rexall—29.
Scherer, Robert P.—362.
Scherer, Robert P., Jr.—500.
Schering sues on patent—607.
Schettel, A. R.—79.
Schleuse, L. W.—213.
Schottelkorb, Frank—71.
Schubert, A. W.—206.
Schulte, Bernard J.—73.
Schultz, E. Ned, M.D.—653.
Schultz, George L. vice-president TGA—213.
Schulz, Paul—79.
Schumacher, Warren F.—354.
Schuster, Herman W.—508.
Schwartz, Hugh—779.
Schwarz, Dr. J. S. Paul—355.
Schwemmer, F. M.—655.
Science in Advertising Symposium—751.
Science In Advertising: The Distribution of Responsibility by Earl W. Kintner—753.
Scientific and Process Instruments Division, Beckman Instruments, Inc. transfers Midwestern sales and service headquarters—360.
Scovill, Lamson—76, 211.
Scriabine, M.D., Alexander—71.
Seaweed—777.
Seay, Patrick H., Ph.D.—503.
Sebaceous Glands—540, 829.
Segman, Harriet—657.
Seidler, John—351.
Selvage, James P.—791.
Serchuck, Jerome—351.
Setterstrom, Carl A.—503.
Set-up boxes preferred five to one—342.
Sewell, Winifred elected—75.
Shackleford, Jr., George G.—75.
Shampoo, pH—104.
Shea, I. K.—503.
Shea, William T.—355.
Shelton, Dr. R .S.—508.
Shiels, Robert J.—793.
Shiftan, Ernest—207.
Shelton, Inc.—327, 639, 775, 777.
Shuster, Edward J.—508.
Side Effects of Drugs by Erwin Di Cyan, Ph.D. —318.
Silloway, Charles T.—207.
Silsby, J. Norman—73.
Simerl, Dr. L. E.—637.
Sinclair, Frazer V.—799.
Sinclair, Frazer V., How Many Retailers?—311.
Six-month sales and earnings—451.
Skelly, William H., Jr.—793.
Skin, aging—314; and soap—108; bleaching—830; disinfection—693.
Skin Research—108, 241, 381, 540, 692, 829.
Skin Surface Film, The by Gavern T. Walker —618.
Slaght, Jr., E. C.—205.
Slater, Charles H.—354.
Slater, Irwin H.—360.
Slichter, Donal C.—209.
Smoking & British Health Service—161.
Smith, Benjamin A.—75.
Smith, Jr., Charles W.—207.
Smith, Everet F.—789.
Smith, H. Courtney—501.
Smith, Jack M., Preventive Medicine In Animal Health—174.
Smith, Jeff Miller—791.
Smith, Kline & French Laboratories—508; Speakers Bureau—641.
Smith, Philip C.—213.
Smith, Robert G.—351.
Smith, Dr. Robert R.—652.
Smith, Roy A.—205.
Snow, Lambert G.—359.
Snyder, Donald A.—71.
Snyder, H. W.—351.
Soap, and skin—108, 241; shampoo *p*H—104.
Sobel, Dr. receives Ames Award—508.
Socialized medicine—745.
Society for Economic Botany Elects Guenther President—75.
Soil samples—778.
Solem, H. P.—353.
Solms, Walter L.—354.
Solulan C-24—230, 379.
Sonneborn to Witco—161.
South Africa manufacturer and distributor available—79.
Spannello, C.—79.
Spatz, Walter in the East—802.
Spicer, Jr., Walter E.—207.
Spitalny, Milton M.—213.
Spitalny, M. Roy—213.
Spravable plastic coating—195.
Spydell, Dennis E.—791.
Squibb Constructing Seattle Plant—214.
Squibb, George S.—206.
Sprigley, Leland R.—779.
Stable poliomyelitis live-virus vaccine—492.
Stabinol—822.
Stambovsky, L., Ph.G., Supermarket Versus Drugstore—40.
Stanback Co., Ltd.—342.
Stankewick, Dr. Walter R.—652.
Sterling Drug plant opened in Australia—81.
Sterling loses Bayer name in Australia—29.
Stern, Edward—500.
Steroid structure—386.
Stessel, Paul—781.
Stetzer, Raymond—213.
Stevens Corp., Wallace—629.
Stewart, Don E.—499.
Stiegman, Dr. Chris A.—791.
Stitt Award to Lewis J. Griffith, Ph.D.—802.
Stock, Fred J.—206.
Stokstad, Dr. E. L. R.—791.
Stolk, William C.—71.
Stouffer, Lloyd—637.
Straka, Jerome A.—213.
Strasenburgh Co., R. J. and Wallace & Tiernan, Inc. to merge—310.
Strate, Herbert A.—791.
Stretch, James C.—209.
Striatran—387.
Strill, Louis—799.
Strong Cobb Arner buys wholesaler—607; doubles New Jersey plant facilities—81.
Stroud, Thomas F.—206.
Stroz, Helen B.—657.
Stuart Co.—639.
Stuart, Robert—500.
Stuteville, Stanley—802.
Sucrose Fatty Acids Esters—379.
Sucrose Surfactants—680.
Suhadolnik, Joseph L.—355.
Sullivan, Jack H.—503.
Sumner, Herbert—508.
Sumner, Howard—665.
Sunburn—381.
Sund, Roy J.—71.
Suntan—381; artificial—95.
Supermarket versus Drugstore by L. Stambovsky, Ph.G.—40.
Suppositoria Laboratories, Inc. acquires Crayton Laboratories—508.
Surfactants, nonionic—680; sucrose—680.
Surrey, Dr. Alexander R.—795.
Sustained action—534.
Sustained-Action, Design of Oral Dosage Forms by Joseph V. Swintosky, Ph.D.—464.
Sustained Action, Experimental Determination of by Earl L. Myers, Ph.D.—622.
Sustained-Action, Making Oral Dosage Forms by Manford J. Robinson, Ph.D.—466.
Sustained-Action Release Rates, Evaluation of by J. A. Campbell—620.
Sustained-Action Drugs—464, 466, 620, 622.
Suter, Dr. C. M.—651.
Swan, Charles H.—209.
Sweetening liquid pharmaceuticals—324.
Swintosky, Joseph V., Ph.D., Design of Oral Sustained-Action Dosage Forms—464.
Syntex and Imperial Chemical Ind.—607.
Syntex expands—159.
Synthetic penicillin—472.

TGA Favors Fair Trade—453.
TGA Scientific Papers—603.
Taberner, Jose Valls—76.
Tabor, Dr. William P.—209.
Tainter, Dr. Maurice L.—651.
Talley, Thomas M.—207.
Taste centers—676.
Taw, Dudley J.—797.
Taylor, H.—351.
Taylor, Wyman L.—797.
Teare, Thomas J.—653.
Teeth whitening—399.
Tennant, H. R.—802.
Terrell, J. Emmitt—75.
Tervino, Eng. Guillermo J.—799.
Teuscher, Robert—79.
Tevco, Inc. builds in Carlstadt, N. J.—360.
Textron Inc. forms Textron Pharmaceuticals, Inc.—508.
Thais, Robert—354.
Thawly, William A.—205.
Thayer, Harold E.—789.
Thayer, John W.—653.
The packaging line of the future—779.
Thomas, Charles L.—209.
Thomas Engineering Co. appointed exclusive American sales representative of Manesty Machines, Ltd.—213.
Thomas, H. Gregory—799.
Thompson, John J. elected associate director, Toilet Goods Manufacturers Association of Canada—505.
Thompson, Ralph—71.
Thompson, W. Furness—209.
Thonet, Theodore A.—501.
Thwaite, M.—351.
Thyroglobulin—387.
Tiefenwerth, William F.—795.
Tishler, Dr. Max receives 1961 Industrial Institute Medal—655.
Todderud, Richard E.—789.
Tolbutamide—821.
Toohy, John J.—214.
Toral, Alvin M.—501.
Tranquilizer—387, 685.
Tranquilizer market stabilizes—27.
Trichomonacide, oral—684.
Trimeglamide—685.
Tripelennamine—685.
Truehart, Dr. Clarence W.—73.
Tucker, Dr. Robert G.—499.
Turner-Tubes—342.
Twombly, Jr., Edward B.—209.
Twomey, Russell D.—81.

Ulmer, Robert M.—205.
Unions plan cut-rate drugstores—32.
Unfit products—773.
Ushkow, Meyer—351.

V. C. A.—639, 779.
Vance, John J.—72.
Vanilla control—93.
van Mameren, Henri G.—207.
Verley, Albert—362.
Verley congratulates R. Barber—657.
Veterinary preventive medicine—174.
Vick research increases—458.
Virus linked with eight cancers—457.
Vishniac, Dr. Roman—641.
Visor, Frederick C.—73.
Visual research—779.
Vitamin A stability—826.
Vitamins and the FDA—25.
Vogel, Arthur—211.
Voorhees & Budd Abroad—76.

Wagner, Donnell H.—75.
Wagner, Philip J.—503.
Walker, C. Neel—795.
Walker, Gavern T., The Skin Surface Film—618.
Walker, H. A.—79.
Walker, Myron—351.
Wallace & Tiernan, Inc. and R. J. Strasenburgh Co. to merge—310.
Wallerstein Co.—379.
Wallick, Joseph F.—205.
Walten, Max Graff, Jr.—503.
Wander forms Aar-Bern Pharmacal Co.—607.
Wands, Hoyland A.—71.
Ward, Dr. John W.—354.
Warner-Chilcott man chosen by medical exhibitors—76.
Warner-Lambert Pharmaceutical Co. and Minnesota Mining & Manufacturing Co. to merge —310.
Warner-Lambert research construction—214.
Warren, Jr., Northam—213.
Warren-Teed buys Phar-Med—32.

Weaver, Dr. Lawrence—351.
Weber, George E.—71.
Webster, Fred W.—207, 213.
Weill, Jacques—359.
Weir, Donald L.—355.
Wellcome Memorial Fellowship—164.
Wellcome Trust Gift—25.
Wells, Ralph A.—793.
Werble, Walace—213.
West, John N.—499.
Wetting agents—96.
Warton, J. B., Jr.—500.
Wheaton Plasti-Cote Co.—183.
Wheeler, Walton M., Jr.—81.
Wherry, G.—79.
Whiskey and vodka—608.
Whyman, Walden H.—206.
Widerkehr, William E.—207.
Wilcox, Dr. Paul W.—499, 503.
Wiles, John H.—791.
Wilkens-Anderson to distribute Unicam Instruments—659.
Willers, Thomas F.—501.
Williams, Albert E.—351.
Williams, D. H.—213.
Williams, L. D.—75.
Williams, R. Jane—657.
Williams, Richard N.—652.
Wilson Laboratories is building and modernizing—360.
Wilson, Ray M.—503.
Wilson, Roy D.—351.
Wimer, Dr. Bruce Meade—795.
Winer, Joseph J.—791.
Winthrop honors two—657.
Wintringham, Arthur B.—75.
Witco acquires Sonneborn Chemical & Refining Corp.—161.
Wojta, Gerald—793.
Woltz, Alan E.—503.
Writing bureau for the industry opens in Stamford—79.
Wyeth building new main plant—607.
Wyeth Pediatric Fellowships—164.

Yankelowitz, Dr. Sam—501.
Yardley—63.
Yardley of London, Inc. building in Totowa, N. J.—360.
York Pharmical to Lucky Tiger Mfg. Co.—27.
Youkeles, Joel—351.
Young, Alan N.—354.
Young, Robert P. T.—795.
Youngs Rubber Corporation—49.

Zahn, Lawrence H. elected president, Packaging Institute—637, 797.
Zielmann, Julian M.—213.
Zapf, John L.—354.
Zeitlin, Frank—72.
Zinc ointments—96.
Zuckerman, Dr. Samuel I.—211.
Zuckerman, Samuel I., Ph.D., The New Color Law—170.